March 15, 1930 Textile World Vol. LXXVII, No. 11

Published every Saturday by Bragdon, Lord & Nagle Company,
Division of McGraw-Hill Publishing Company, Inc., New York

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Fundamental Technical Research

DURING the last decade, the editors of Textile World have devoted hundreds of columns to discussion of the need for organized fundamental technical research in the industry. Their enthusiastic support of the economic research programs initiated by the various institutes during the last few years, has not blinded them to the fact that, coincidentally with development of these activities, there must be prosecuted an industry-wide investigation of the premises upon which present-day manufacturing processes are based.

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Their realization of the difficulties involved was no stronger than their conviction that such a program would eventually be undertaken.

Consequently it is with deep gratification that they see possibilities of a start being made during 1930. Furthermore, they take pride in the fact that one of their alumni, Charles H. Clark, former editor of Textile World, is today one of the leaders in this movement. The Textile Research Council, of which he is secretary-treasurer, has developed a plan whereby the groundwork may be laid for organized technical research in textile manufacture. This plan was outlined by Mr. Clark in an article in the Annual Review and Forecast Number of this publication.

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The Council offers this plan to the industry at large and invites the cooperation of all organizations and individuals. Its officers and members are interested, not in the Textile Research Council, but in fundamental technical research in the textile industry.

On this basis, they merit the wholehearted support of all textile manufacturers, both individually and through their various associations.

The Week in Textiles

Outlook . . .

RAW COTTON still causing hesitation in cotton goods. Some improvement in volume looked for, but price situation not very steady. . . . . Wool goods still uncertain, but many feel element of stability is gaining ground. . . . . Hosiery still working out of poor situation. . . . . Raw silk stronger after set-back.

None So Blind . . .

SALES OF standard cotton cloths for the four weeks of February were 243,861,000 yd., or 91.4% of production, according to figures released by the Association of Cotton Textile Merchants of New York. For the four months ending Feb. 28, production was 117,277,000 yd. in excess of sales. . . . . Unfilled orders at end of month totaled 360,889,000 yd., a decrease of 7.8% when compared with January. . . . . Stocks were 1.7% lower, but the total of 445,125,000 yd., is still higher than for any month during 1929, with the exception of December, and considerably above the monthly average for any of the four years for which statistics are available. . . . . The report is not one to enthuse over.

Textile Research May Benefit . . .

PROSPECTS APPEAR to favor enactment by the Congress this session of Merritt bill for expenditure in textile research of $1,500,000 fund derived from profits realized by Textile Alliance, Inc., in handling, at request of State Department, sale of reparation dyes following close of the war. . . . . Under terms of bill, Textile Alliance Foundation would be created by Congress as a federal corporation authorized to distribute the impounded fund among existing agencies engaged in textile and allied research.

April Showers . . .

GAY, COLORFUL effects and high-styled prints and "tweeds" are among the Pacific Mills' Shower Prints which are offered to brighten the drab days when raincoats are worn. . . . . New waterproof fabrics have been developed which will allow the raincoat to follow fashion's trend and enter the ensemble.

Figures Don't Lie . . .

THE MYSTERY of why hosiery prices are being slashed right and left, and why raw silk firms face the prospect of going into the hosiery business, thanks to the accrued indebtedness of knitters, may be explained in statistics. New orders for November, December and January totalled 13,444,444 doz. pairs, against an aggregate output of 14,715,745 doz. pairs. Thus the sweet music of 1,271,301 doz. pairs produced in excess of sales. . . . . Women's full-fashioned January output stood 1,859,468 doz. against 1,270,357 doz. actual orders. . . . . Philadelphia district reports a 28.6% decline in sales in January against a 4.6% increase in output in the same month. . . . . Last November, National Association of Hosiery and Underwear Manufacturers issued bulletin advising manufacturers to cut inventory and reduce operating schedules for first quarter, 1930.

Efficiency . . .

DEVELOPMENT AND usage of automatic devices in textile machinery was traced by Lincoln Baylies, president, National Association of Cotton Manufacturers, at the Textile Forum in Boston, Mar. 13. . . . . After stating that the American cotton industry leads the cotton manufacturing countries of the world in the use of automatic devices, Mr. Baylies continued: "Improvements in manufacturing methods made possible through the cooperation of employes and employers have resulted in savings in manufacturing costs which have been of benefit to the operatives and the mill management."

Cotton for Lane-Marking . . .

WE ARE pleased to quote from *Engineering News-Record,* in part: "Every road user knows that traffic capacity and convenience, as well as safety, are promoted by lane-marking. Systematic extension of lane-marking promises to yield a material increase in efficiency of the highway." . . . . The New Uses Section of the Cotton-Textile Institute has demonstrated that cotton fabric strips offer a method of marking which has many advantages. . . . . May public opinion be aroused!

Odds and Ends . . .

A LENGTH OF rope knotted into a hangman's noose was found suspended from a post in front of a building in the Boston wool district. A placard hung thereon: "For the exclusive use of wool men. Compliments Farm Board." Wool men declined unanimously the invitation to suicide, and smiled at the human weakness for hanging blame on the most convenient peg. . . . . At British Industries Fair leading chemical concern displayed range of perfumes for scenting cotton goods for the Oriental market. . . . . "Astrakan" is said to be a misnomer as there are no sheep within 500 miles of the place called Astrakan, which, incidentally, is noted for caviare. There are large numbers of caracul sheep in Persia and "caracul"

is said to be the correct name. . . . . Geometric designs traced by President Hoover while telephoning have been used for children's dress prints. Telephone company, however, is not as yet enthusiastic about future demand for old phone booths.

Knit Underwear Trade Conference . . .

FEDERAL TRADE COMMISSION had authorized second trade practice conference for knit underwear industry. Among important matters to be considered will be proposed rule to show percentage by weight of wool contained in garment, and labeling of part-wool garments concerning which no agreement was reached at first conference. . . . . Commissioner Edgar A. McCulloch will preside, but no time or place has been determined.

Boll Weevil Parasite? . . .

DR. J. H. MILLER, professor of botany, University of Georgia, and George Crisfield, collaborator, have found a certain insect which may prove an antidote to the boll weevil by attacking the latter. . . . . The name of the new parasite, *uracom mellitor,* should at least prove distressing to the weevil.

Fifty Below Zero . . .

WORUMBO CO., NEW YORK, has received radiogram from Byrd Antartic Expedition commenting on warmth and comfort of parkas of fabric made by Worumbo Co., while skiing at fifty below.

To Give Speaker Chance . . .

TO INSURE proper reception of speeches at the 26th annual convention of the National Association of Hosiery and Underwear Manufacturers, Thursday, May 15, a soundproof room and amplifiers will be installed at the Commercial Museum, Philadelphia. . . . . As usual convention will be held in conjunction with the Knitting Arts Exhibition, to be held May 12 to 16 inclusive. . . . . Details of program will be announced in near future.

Management and Profit . . .

MALCOLM P. MCNAIR, managing director, Harvard Bureau of Business Research, in an address to New England Retail Clothiers' and Furnishers' Association, offered comparative figures for groups of department stores with the same net sales to prove his point that profit is controllable by management. . . . . Mr. McNair stated: "Management starts with the determination of merchandising policies. True merchandising sells before it buys; that is, it doesn't buy what it can't sell. It anticipates customers wants. True merchandising achieves fast stock-turn because it has no unwanted goods."

Plan To Raise Flax . . .

A NEW AND economical method of treating the fiber of the flax plant is said to be the basis of plans to raise flax in Virginia on a commercial scale. . . . . E. O. Flippin, who recently resigned as secretary of the state conservation and development commission, stated that a group of business men in central Virginia will be associated in the enterprise.

Export Conferences . . .

FIRST TEXTILE DAY held by Bureau of Foreign and Domestic Commerce in New York proved of considerable advantage to both Bureau and textile men interested in exporting. In the series of conferences the latter learned what the Bureau has done and intends to do, thus precluding the duplication of effort, and the Bureau gained first-hand knowledge of the real needs of the industry as a guide to future work. . . . . Success of first meeting insures continuation of plan. . . . . Details elsewhere in this issue.

Court Denies Design Protection . . .

U. S. SUPREME COURT refused to grant writ of certiori sought by Cheney Bros. to review suit against Doris Silk Corp., permitting lower court decision to stand. In February, 1929, Cheney Bros. applied for injunction restraining defendant from selling certain designs. Lower courts held, in effect, that there was no law protecting piece goods designs. . . . . Bill is pending in Congress to provide for design copyrights.

Textile School Adds Equipment . . .

TWO CROMPTON & KNOWLES automatic looms, 25 harness, 4 by 1 box with leno attachment, have been installed by the New Bedford Textile School. A special class is being run for local fixers who wish to become acquainted with this type loom. General Electric Co. donated motors for the looms.

Is Purchaser Guilty? . . .

"RIGHT OFF THE BOAT" may yet be whispered in good old England. Variety of "wet goods" in such a hypothetical case, however, would be bathing suits. . . . . It seems that one suggested remedy for preventing—to phrase it delicately—girls being sunburned over an undue expanse, is to make manufacturers knit to specifications and thus insure adequate coverage.

Grim New England Thrift Pulls Amoskeag Out of Rut

Under the above heading *The Business Week* is publishing in its current issue the results of its own investigation into the causes of the Amoskeag "come-back." Its findings are summarized in the following sentence: "Amoskeag's return to fruitfulness is a result of courage and economy."

Under the heading, "Amoskeag: A Demonstration of Courage," TEXTILE WORLD, in its Feb. 15 issue, stated: "No chance for economy has been regarded too small for consideration . . . . It is a combination of President Hoover's prescription, 'work,' and of TEXTILE WORLD's keynote in its Annual Review and Forecast Number, 'courage.'"

Through the courtesy of *The Business Week*, we are printing herewith its article, in large part.

NEW ENGLAND'S textile industry, depressed by years of reverses, gloomy from the advance of southern competition, has been heartened by an unexpected ray of sunlight. Amoskeag Mfg. Co., once ready to liquidate, announced a dividend of $1 on stock and a 5% bonus for employes from 1929 earnings! As if a corpse had leaped!

The Amoskeag mills at Manchester, N. H., are the largest of their kind in the world. For more than 100 years they have stood beside the falls of the Merrimack River drawing its power for looms and spindles. Difficulties common to the industry were aggravated in this case by giantism and old age. If Amoskeag can come back, there is hope for others.

The feat was achieved quickly. In 1928 the company showed a deficit of $1,723,395. For 1929, earnings were over $1,500,000, when you add to dividends and employes' bonus the interest on company bonds. The entire textile world is asking by what magic this was done.

It wasn't magic. Amoskeag's return to fruitfulness is a result of courage and economy. This economy was applied grimly to management as well as labor. While the man in overalls was asked to do more work for less money, holders of soft jobs with fat salaries were mercilessly divorced from the pay roll. In cutting items of plant cost not a useless penny was spared. These Spartan measures were accepted philosophically. Liquidation was the only alternative.

Frederick Christopher Dumaine, treasurer of the company, accomplished the feat. It is the peak achievement of a past-master in old fashioned New England economy. A person elusive and uncommunicative is F. C. Dumaine. His office in State Street looks out on the hind-quarters of King George's unicorn who still paws at the gables of the old State House. A secretary confessed cautiously that Mr. Dumaine was out of town. In a burst of confidence she added,

"And if he were in, he would be *terribly* busy!"

Dumaine the Man

Pictures of the Amoskeag treasurer are scarce. He does not indulge in high-flown rhetoric at booster meetings. All his energies are concentrated on Amoskeag and on the Waltham Watch Co., of which he is president and treasurer. His comment on Amoskeag will be made public at the annual meeting next month—and not till then.

He is no gaunt Puritan type. Mr. Dumaine is short, stocky, the possessor of a steadfast eye. A broad jaw is concealed by the roundness of his face. He was born in 1866 and as a boy worked in textile mills. The name appears first on the Amoskeag board of directors in 1904. He lives in Concord, Mass., where "once the embattled farmers stood." "Who's Who" does not list him as a member of any club.

In 1909 Mr. Dumaine assumed control of the sale of Amoskeag's products which until that time had been handled through selling agents. Since the concern was reorganized in 1927 he has been given full authority to pull it out of the hole. Early in 1929 the outlook was so black that there was a powerful sentiment for liquidation. The treasurer shut his teeth and declared that he intended to carry on. His statements at that time show to what a desperate condition the company had come. Here is how it stood at the end of '28:

"In order to pay city taxes of $780,000, to meet interest on bonds and notes, to expend $337,000 for new machinery, and to settle current expenses including payrolls, it was necessary to dip into the quick capital to the extent of $960,000."

After touching on what southern mills had done to those of New England the treasurer showed specifically what had happened to Amoskeag. In 1912 the company produced at Manchester 223,000,000 yd. of cloth; in 1928 it produced 100,000,000. In 1920 gross sales totaled $56,000,000; 1928 gross was $28,000,000. Looking these tragic figures in the eye, Mr. Dumaine had the courage to declare:

"Liquidation—the last thing those of us with a personal regard for this city and the property want—means the most terrible sacrifice of money values imaginable . . . I am ready to do all possible, institute every economy, shoulder every responsibility and stand every criticism, to carry on."

Causes of Amoskeag's Troubles

The parlous conditions facing the company were largely due to southern competition and general sogginess of textiles, but not entirely. We are told that dinosaurs perished because they were too huge and unwieldy.

There is a danger in being too big. Also antiquity tends toward inflexibility—and ours is a swiftly changing age. Amoskeag, the giant patriarch, suffered in both directions.

In the days of its might, an exporter who suggested changes that would help sell goods in the South American market was told that Amoskeag goods were made in a certain way. Customers could buy them or not. Women, bewitched by styles they saw on movie heroines and in magazines, turned from ginghams. Amoskeag did not.

Back in the period when a New York selling agent handled the mill's output little attention was paid to the New England market. A woman in Manchester says she can remember when Amoskeag ginghams could not be bought in the town. Later, they were handled by one merchant, a friend of an Amoskeag executive.

The company engaged in all sorts of industries from time to time. It dealt in land and water sites. During the Civil War, when cotton was hard to get, Amoskeag made Yankee rifles. Earlier in its history it manufactured locomotives and fire engines. At one time it owned a saw mill and a grist mill. Machine equipment was made in its own shops. Books and catalogues bear the imprint of the company's printing plant and bindery.

Frederick C. Dumaine

The Remedy

Here were a few of the problems facing the man who had to resuscitate this huge organization. They were met by modernizing the output and by ruthless economies. Styles of goods were made attractive and brought into line with woman's demands. A rayon plant was established. A powerful selling organization was created to push the market for these fabrics—in near-by New England as in other territories.

When it came to cutting wastes in the plant, Mr. Dumaine was aided by an able lieutenant. He is Henry Rauch, a young man steeped in the Dumaine technique. In Manchester they say that Rauch would say to a superintendent, "Cut your department to the bone." The super would go what he thought to be the limit. Along Rauch would come and cut that just one-half.

About the time of the reorganization employes agreed through their company union to a 5% reduction in wages. It was shown that this was necessary for the plant to continue operation. The management agreed to restore the cut when and if the concern showed a profit and this is the reason for the 5% bonuses recently voted. However, only those who have been employed for the full year of 1929 share in it.

Employes agreed to the wage cut and to the increase in work as their contribution to continued operation. Number of workers dropped from a peak of 17,000 to about 8,000. While carrying this extra burden workers have watched a merciless stoppage of unproductive expenses. Many of these are ingenious and amazing.

Formerly raw wool was kept in Boston where storage had to be paid. Amoskeag established its own bonded warehouse in Manchester where its wool was kept without extra cost. Much of the company trucking is between different units of the huge plant. Some 60 trucks did this hauling. Formerly all of them had state and city license tags. There is only one place where Amoskeag trucks have to cross a public street going from one unit to another.

Why buy license tags for trucks that never go out of the mill yard? They don't any more. Three of the trucks have state and city tags and these only can cross the public thoroughfare. The rest of the fleet stays within the plant fence and pays no unnecessary license fee.

Office boys were furnished bicycles with which to take messages from one mill to another. They accepted a slash in pay with other employes. One day a certain red headed mercury asked for a new tire for the company bike he rode. The demand attracted attention and resulted in action. It was ordered that in the future boys hired for messengers must furnish their own bicycles.

Other economies effected were the sale of real estate and the renting of unused buildings. It is estimated that all these measures have resulted in a slash of a million and a half in the company's overhead.

Factors in favor of Amoskeag's continuance are rock-bottom costs, modernized fabrics, the general promise of more goods for women's dresses because of longer skirts. Factors against are the lower costs of southern manufacture, overproduction everywhere, old equipment that Amoskeag has been unable to replace. (It has its own feeler in the South, operating a mill in Arkansas.) Also there is a possibility of recurring labor troubles.

The Future

One promise of continued friendly relations lies in the personality of F. C. Dumaine, Jr., who is being coached to take up his father's work. The younger Dumaine has sanely liberal views, is popular with the workers, will even talk if one backs him in a corner.

There was a time when the liquidation of Amoskeag would have meant grass in Manchester's streets. The name and the mills are as old as the town. Amoskeag is a corruption of an Indian word meaning "high place for fish." The 54-foot falls were once a favorite with the savages. Here they could spear and hook salmon as they struggled up the falls under that mysterious urge which forces them to seek for spawning the waters where they hatched. The dam blocked the fish and killed the sport.

Manchester is now a city of 85,000. The mellowed red brick of the Amoskeag walls border the troubled Merrimack for almost its whole course through the town. If the mills were ever forced to close and throw out of work their 8,000 employes the result would be serious to Manchester but not fatal. It is an important center for shoes, manufacturing such brands as Beacon, Craft, Lady Stout and Thom McAn. A famous cigar "7-20 4" is made here. The Chamber of Commerce lists 167 manufacturing industries.

Georgia Mill Men Exchange Ideas on Carding and Spinning

MORE than 150 members and visitors were present at the spring meeting of the Textile Operating Executives of Georgia, held in the Chemistry Building, Georgia School of Technology, Atlanta, Ga., March 11, which was featured by an enthusiastic discussion of carding and spinning problems. Systems of long draft spinning were described and appraised in comparison with ordinary spinning, while an interesting part of the meeting was a general discussion of methods for correcting the weight of picker laps to maintain uniform numbers.

After the invocation, General Chairman Frank E. Heymer announced that the morning session on carding problems would be conducted by E. H. Rogers, agent, Fulton Bag & Cotton Mills, Atlanta, Ga., and the afternoon session on spinning would be presided over by D. D. Towers, superintendent, Anchor Duck Mills, Rome, Ga.

Experience with methods of spraying oil on raw stock, which was the first subject for discussion, indicated that the proper application of oil by means of the high-pressure nozzle, or atomizer, would eliminate dust in the card room to a noticeable degree. Mr. Towers stated that good results were obtained by applying oil on the white cotton in the vertical opener, using air pressure at about 50 lb., but that care should be exercised not to apply an excessive amount of oil. The maximum amount of oil that can be applied without serious trouble developing was said to be 2/10 of 1%, while under ordinary conditions 15/100 of 1% is adequate and makes a noticeable difference in the reduction of dust. When oil is applied to the cotton in the vertical opener, it is essential that the accumulation of oily waste be removed at frequent intervals.

Picker Room Humidity

While it was pointed out that more uniform results can be obtained by the accurate control of moisture in the picker room, rather than by correcting the weight of laps to balance the variation between moisture regain and the weight of dry cotton, several members declared that satisfactory results had been secured with a device which automatically registers on a scale the proper correction for moisture regain as determined from conditions in the picker room. The regain indicator determines the standard for weight of laps, but a tolerance of ½ lb. either above or below the standard is generally permitted.

If air for the picker room is drawn through the card room, local conditions should not show enough variation to require an adjustment of the weight of picker laps, according to George S. Elliott, superintendent, Pacolet Mfg. Co., New Holland, Ga., who said that recording hygrometers should be used to register the humidity in such cases.

Where Waste Occurs

The tendency was said to be toward removing more waste in the opening and picker rooms and less on the cards. V. J. Thompson, superintendent, Manchester (Ga.) Cotton Mills, presented the results of tests made to determine the percentage of waste removed by each of the preparatory processes to and including carding, which were as follows:

Bagging and Ties	4.97%
1st Vertical Opener	1.47
Centrifugal Air Machine No. 1	.74
Centrifugal Air Machine No. 2	.64
Murray Cleaner	.31
Breaker Picker Double Beater	.74
Finisher Picker	.69
	9.56%
Invisible Waste	.55%
Total Waste Before Carding	10.11%
Card Strips	1.70%
Card Fly and Motes	1.52
Total Waste After Carding	13.33%

Three bales of $\frac{7}{8}$-in. cotton, weighing 1,629 lb., gross, were used in running the above test and accurate check was made on the stock as it passed through each process.

When grids are closed and a smaller amount of waste is removed from the cotton in the picker room, according to the experience of J. C. Edwards, superintendent Martha Mill, Thomaston, Ga., with more cleaning done on the cards, the total amount of waste through the cards is practically the same as before making the change.

An experiment in the Georgia Tech. Textile School, which was described by H. S. Busby, director, developed that a low type Western cotton, averaging between $\frac{5}{8}$ and $\frac{3}{4}$ in. in length, would run satisfactorily on a card equipped with metallic clothing, whereas it would not run on ordinary card clothing. Practically the same settings were used on the metallic clothing as on the wire clothing. Another member reported that one advantage in using metallic card clothing was the reduction in the amount of stripping. His cards running metallic clothing were stripped with the vacuum system once a week.

Straight Wire Clothing

The discussion of results with straight wire card clothing brought out the following advantages which were said to be experienced through its use:

(1) The elimination of 80% of time lost in stripping.
(2) Reduction of quantity of cylinder and doffer strips.
(3) Elimination of 50% of time lost in grinding.

The above factors combined to obtain an increased production with decreased waste and lower labor costs. On the other hand, it was observed that cylinder and doffer strips were lowered in grade; there was an increased amount of fly, making it more difficult to keep cards clean; and bruised clothing was not as easily straightened.

V. E. McDowell, overseer carding, Eagle & Phenix Mills, Columbus, Ga., stressed the importance of having straight wire clothing placed on in the right way to avoid trouble and obtain the proper results. One member stated that seven cards were equipped with straight wire clothing in November, 1928, and that running day and night on $1\frac{1}{16}$-in. cotton, it has been found necessary to

strip only once a week and to grind every 16 days. It was pointed out that, although the card sliver from cards equipped with straight wire clothing would weigh heavier, by the time the sliver reached the roving frames there would be practically no difference in weight as compared with stock from the regular cards.

The proper doffer cylinder speed for maximum breaking strength on cotton averaging between $1\frac{5}{16}$ and $1\frac{1}{16}$ in. in length, irrespective of weight of sliver, was said to be between eight and nine r.p.m., on doffers of 27-inch diameter. An improvement in the evenness of work was noticed by increasing the draft in carding. The majority of members reporting gave their draft on cards as being 100.

The continuous stripping system for cards was found to be satisfactory at Chicopee Mfg. Co., Gainesville, Ga., it was said. Several members reported having encountered difficulty in using vacuum card stripping systems, while in other cases they were said to give good results.

Revolving clearers on drawing were said to reduce the amount of waste and to give no trouble. The felts were said to run from four to seven years without requiring cleaning.

Two roving frames were equipped with spiral-gear drive, according to one member, and back-lashing was largely eliminated, while vibration of the entire frame greatly reduced. Spiral gears on drawing frames were said to result in a more even sliver from the machine. Chain drives for roving frames were recommended by several members who had used them. Not only were chain drives said to remove back-lash, but also a saving in cost of lubrication was effected, and there was a reduction of end breakage on the roving frames.

Following the conclusion of discussion on carding problems, the meeting was adjourned for luncheon, which was held in the Georgia Tech dining hall. Walter C. Taylor, secretary and treasurer of the Southern Textile Association, delivered a short address at the luncheon table and emphasized the value of the constructive work being done in the field of practical textile research by The Arkwrights, Inc. E. H. Rogers, agent, Fulton Bag & Cotton Mills, Atlanta, Ga., was re-elected to membership on the executive committee of the organization following the luncheon.

Spinning Problems

Discussion of spinning problems, under the leadership of D. D. Towers, Anchor Duck Mills, Rome, Ga., began at the opening of the afternoon session.

The revolving top clearer was used on front rolls in one spinning room where the Bunchless automatic cleaner kept the middle and back rolls clean. The revolving top clearer was found to greatly reduce the time required for picking clearers, as it was only necessary to pick the revolving clearer once each week, instead of from six to eight times daily. The stationary clearer was found to cause less damage to leather-covered rolls.

In cases where mills are running different staple lengths of raw cotton, with the long draft spinning systems it is not usually found necessary to change draft gears, according to the opinion of several members present. Mr. Elliott stated that yarn spun on long draft, using double 3.00 hank roving as compared with double 4.00 hank roving on ordinary spinning, was found to have from 5% to 10% greater breaking strength. He said that more end-breakage occurred in spinning with the long draft system, but that there was a smaller percentage of loom stoppage as a result of ends down in weaving.

Long Draft Fiber Control

A. E. Massey, general superintendent, Thomaston (Ga.) Cotton Mills, expressed the opinion that the major point to be considered in long draft spinning is fiber control, or keeping the fibers from losing their position while being fed into the rolls. He said that the staple of cotton used and the handling of the stock in the preparatory processes are of extreme importance. The highest draft that can be accomplished with long draft systems was said to depend in a large measure upon the purpose for which the yarn is being made. Economies in labor costs and floor space effected by the installation of long draft spinning were said to vary according to whether changes are made in old plants or the new system is incorporated into the construction of a new mill.

Fairly medium hard-twisted roving was said to make the best spinning bands. One member found that 2.50 hank roving, with $5\frac{1}{4}$ turns twist per inch, in 12-ply made a very satisfactory band. Mr. Towers suggested that spinning bands be soaked for 30 minutes in a thick soup-like mixture of beeswax dissolved in gasoline, then dried off and allowed to stand overnight before using.

In discussing experience with larger size rings in spinning coarse yarns, one member reported that 3-in. rings had been installed on a frame equipped with $2\frac{1}{8}$-in. rings, and having a 7-in. traverse. Using a "double-duty" air-cooled traveler, with the same size bobbin that was used on the $2\frac{1}{8}$-in. rings, spindle speed of 6,800 r.p.m., and front roll speed of 174, standard warp twist wind, 7s yarn was successfully spun from single roving, $1\frac{5}{16}$-in. staple cotton. The traveler speed was said to have been approximately 5,300 ft. per minute.

Smaller trumpets at the cards were said to have a tendency to produce yarn of extra large diameter for its number, while it was found that oiling of raw stock would tend to reduce the diameter of the yarn. Mr. Massey was of the opinion that the character of cotton fiber exerts a large influence in the determination of yarn diameter.

Individual chain drive on spinning, according to Mr. Elliott, shows excellent results, while another member reported the recent change of 35,000 spindles from four-frame drive to individual Texrope drive.

Mr. McDowell presented some results of comparative tests in the card room showing the number of ends down on white and dyed stock over the same period of time, which were as follows:

Process	End Down White Stock	End Down Colored Stock
Cards	4	15
Coarse Drawing	10	40
Finish Drawing	4	24
Slubbers	30	43
Speeders	51	48

The results of the above tests showed that by the time the two kinds of stock reached the speeders there was very slight difference in the amount of end breakage.

Following the discussion of spinning questions, a number of master mechanics who were present expressed their desire to have group discussions of problems relating to plant maintenance and mechanical work in textile mills. It was decided to hold a round-table discussion of questions concerning the work of master mechanics at the fall meeting of the organization, in connection with the regular consideration of slashing and weaving problems.

Public Opinion to Settle Hosiery Strike

ATTENTION of the full-fashioned knitting trade has been centered in recent weeks on Philadelphia, where workers in a number of plants have been on a strike in protest against reductions in pay schedules. The outstanding plant to which attention has been drawn is that of the H. C. Aberle Co., one of the largest full-fashioned manufacturers, from whose plant approximately 1,400 employes left their machines.

After the walk-out the Aberle firm employed several hundred workers who were willing to operate their machines on the terms as outlined by the management. Employment of these workers immediately caused bad feeling among the strikers and during recent weeks outbreaks between the rival factions have been becoming more severe. The climax was reached more than a week ago when one man was shot to death and two others were wounded in a pitched battle between employes of the Aberle mill and adherents of the strikers.

Property Being Damaged

This week further shooting took place, six men being shot and six others seriously beaten in clashes between the workers and strike sympathizers in various sections of the Kensington textile district. Between these more important outbreaks the locality of the mill has been the scene of innumerable battles in which workers' homes have been damaged and street fighting has been more or less common.

The strike reached a stage where city officials have agreed that public safety has become the more important question and for this reason have taken steps to end the long and bitter feud. Mayor Mackey of Philadelphia appointed two arbitrators who were not acceptable to the Aberle concern and in a letter to the Mayor an official of the firm outlined its stand.

The letter was as follows:

"First. We believe you have not been fully informed of the situation at our mills and in the industry. Second. Our mills are operating and have been continuously operating. Third. We have not employed and are not now employing strike-breakers. Fourth. We have approximately 400 persons employed at our mills at the present time, can obtain all the employes we require and are ready to furnish immediate employment to a considerable number of persons if full protection to their persons and property is accorded them.

"Fifth. Our employes state they have not received full protection going to and from work and at their homes, and that they are suffering and have suffered many acts of violence. Sixth. We have always operated our mills on an open shop basis and have employed competent persons irrespective of their affiliation or non-affiliation with any particular organization. Seventh. We will not unionize our mills. Eighth. We will not discharge employes because of non-membership in any organization. Ninth. We will not operate our mills at a loss.

Aberle Mill May Be Moved

"Tenth. If it is found to be impossible to operate our mills on the above basis, we will be obliged to move our entire business to other locations and we have consummated plans for the removal of part of our business and machinery on account of recent conditions. After running our mills at a loss for a number of months, we explained the condition of the industry to our employes in December last and told them that if our mills were to continue to operate a new schedule would be necessary. To such a new schedule they agreed and worked under the same until outside influences were exerted to cause, through intimidation and otherwise, a number of our employes to quit work and unionization of our mills was and is demanded."

This statement was signed by G. C. Aberle, treasurer of the firm.

Commenting on conditions in the Philadelphia textile district of Kensington, Emil Rieve, president of the American Federation of Full-Fashioned Hosiery Workers issued a public statement. It said:

"We are broadcasting an appeal to the entire community urging all responsible persons to assist us in keeping the peace at this time when feeling is running so high. If misguided and alleged sympathizers are throwing bricks into homes thinking they will help the strikers, we wish to tell these individuals that they are most emphatically hurting and not assisting our cause.

"Peaceful, orderly demonstrations of sympathy with the strikers are, we believe, a safety valve for public feeling at this time and efforts to prevent lawful congregation would do more harm than good. We will do all in our power to assist in keeping peace, feeling that our cause is just and must prevail. We stand by our offer to arbitrate all issues in controversy and will continue our efforts along these lines. It is peculiarly unfortunate and harmful to the cause of our strikers that such a stupid act of vandalism should take place at this moment, when we are informed that a very hopeful move for peace is being made."

Arbitrators Appointed

The hopeful move for peace was the appointment of impartial citizens to arbitrate. After a meeting of the mill executives and a number of public-spirited citizens the following statement was issued: "The H. C. Aberle Co., management has consented to meet the following representative citizens to discuss ways and means of adjusting matters arising from the present labor situation in the Aberle Mills:

"Rabbi William H. Fineshriber, Dr. Frank D. Watson, Dr. George W. Taylor, Rev. E. A. E. Palmquist, Bernard Waring, M. L. Cook, Dr. Joseph B. C. Makie, Perry Hitner and Colonel G. W. Hicks."

This group held a meeting with company officials March 11 and following this session it was announced that a committee of three would be appointed, one to represent the Aberle management, one to represent the workers and one representing the public.

From this committee of three it is probable that an agreement will be reached that will have the support of all factions. If the contest at the Aberle plant is adjusted, it is likely that strikes at present effective in other full-fashioned plants in Philadelphia and other sections, will also be settled.

Keener Competition a Cause

Full-fashioned knitters as a class are the highest paid workers in the textile field, one of the highest paid earning $7,700 in one year recently. Unbiased observers outside of the trade itself believe conditions have changed to such a degree that it is doubtful whether manufacturers can continue to pay these rates and remain in business when mills in other sections are operating on a lower basis.

Prohibitive Tariff Takes American Textile Capital to Great Britain

THE further raising of the British tariff wall, both within Great Britain proper and in at least one of her colonies, is resulting in the exodus of considerable American textile capital to the Empire, and also in the formation by American companies of foreign sales units to merchandise British-made goods. Several significant moves in this direction have been announced recently. Jantzen Knitting Mills, one of the world's largest producers of bathing-suits, have bought a site near London, on which a mill will be built at once for the production of bathing-suits. The Campe Corp., underwear producers and leaders in the manufacture of knitted rayon underwear, are negotiating with a British company for the production of the Campe rayon underwear lines in a Surrey mill; it is understood that the Campe company mill would be equipped with American machines and would use British yarn.

These developments are the outcome of the tightening of Great Britain's tariff barrier, which has made it prohibitive for American producers to export, and they are of a piece with developments in Australia where a particularly interesting situation now exists. That Commonwealth is encouraging the importation of textile machinery and discouraging the importation of finished goods with the aim of stimulating home industry, and thus solving the unemployment question which has become a vital issue in Australia.

The official attitude of Australia on the subject is indicated in statements made by Mr. Scullin, the Prime Minister of Australia, following the passage of a new and higher tariff measure for the Commonwealth. The Prime Minister was making the principal address at the laying of the corner stone for the new hosiery plant dedicated by Staley & Staley, large hosiery manufacturers of Australia.

The Prime Minister, speaking late in January, said that a few weeks previous when the new Government was formed to rule the Commonwealth, the greatest problem that it had to face was that of unemployment. Study convinced the leaders in Australia that the answer to their problem lay in making their own goods in their own country by their own people. He stated that the Government determined that the policy of protection was for the benefit of Australia, not for the benefit or aggrandisement or profit of a few people. Manufacturers with whom he spoke assured him that they stood behind the Government in this policy. The Government felt that this offered the best means of increasing employment in Australia without increasing the cost of living.

Mr. Scullin went on to say that he had accepted the invitation of Staley & Staley to lay the corner stone of their new addition because it represented in a substantial way an addition to the industries and also to the Australian idea of protection. He congratulated the firm upon its enterprise and said that he hoped, with added protection the tariff now afforded, that manufacturers there would go ahead and employ more people.

Development of Australian industry, he asserted, was a sounder policy than merely encouraging people to come there from other sections of the world and have no employment for them when they settled. Mr. Scullin stated that figures supplied to him by manufacturers indicated that as a result of the higher Australian tariff there would be an increase in employment of 30,000 within a period of a few months and it was anticipated that within a little more than a year an additional 100,000 would be employed, a real answer to the problem, he said.

The passage of the new Australian tariff, Nov. 22 of last year, has practically made the importation American-made hosiery impossible. Indications of this are to be seen in the announcement just made that Holeproof Hosiery Co. (Australia) has been organized by the Holeproof Hosiery Co., Milwaukee, Wis., to market full-fashioned hosiery and circular knit manufactured by Staley & Staley. This announcement was made by W. W. Freschl, vice-president in charge of the Holeproof company's export trade.

Mr. Freschl stated that he had received a cable from Holeproof's export manager advising them of the completion of the new arrangements in Australia. He added that the export manager had gone out to Australia six months previous with the intention of reorganizing the firm's selling arrangements in that country but that the passage of the new and higher Australian tariff had made it impossible for them to proceed further along those lines or to give further consideration to exports from the United States, the new rates being prohibitive.

The export manager then began negotiations with several Australian concerns, the outcome of which was the arrangement just announced with Staley & Staley. The new tariff is regarded by other American hosiery manufacturers in the same light, as may be seen in the policy of Julius Kayser & Co., who have recently announced completion of arrangements with the Australian Knitting Mills, Melbourne and L. & E. Marks & Saulwick Pty., Ltd., to produce full-fashioned hosiery. Initial production in the plant of this firm it is stated will total 1,000 dozen weekly.

Hold Conferences on Textile Exports

EDWARD T. PICKARD, chief, Textile Division, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, working in collaboration with the New York staff held the first "Textile Day" at the New York Custom House on March 12. The day was taken up with a series of conferences with textile men interested in foreign trade. At the conclusion Mr. Pickard made the following statement:

"Textile Day, arranged by James F. Hodgson, manager of the New York office of the Bureau of Foreign and Domestic Commerce, and J. A. Mack, textile specialist, proved to be of great interest and help to me and resulted in many gratifying surprises. From early morning until closing time a constant stream of visitors arrived by appointment to discuss details of foreign trade in textiles and textile products. I gained the distinct impression that most of the export interests interviewed had graduated from the impressionable elementary stage and, like the front page of the modern newspaper, had gone 'economic.' The type of inquiring mind in today's export fraternity is no longer satisfied to be told that there is a probable market for yarns in Argentina or voiles in Brazil, but he wants to know more about the many important factors, economic and commercial, which affect these and other countries as secure and growing markets for his products.

"The variety of interests represented by the visitors was pronounced. Only a few were satisfied with the adequacy of immediate opinion. Most of the discussions and questions involved additional investigation through the Department of Commerce at home or abroad, and I must add that the modern American export mind is of a most searching character. The inquiries ranged from the essential considerations to be reckoned with in the establishment of a branch factory abroad, to the possibility of marketing sheets and towels in Europe.

"Notwithstanding the keen interest in foreign markets for textiles and textile products, I found no evidence that the zeal for foreign trade is impelled by the desire to find temporary foreign outlets during a period of slackened domestic trade. By and large, today's foreign trader is interested in permanency and stability of foreign outlets and does not regard such business as an expedient to take up the slack in the home market. This, without question, is the correct attitude.

"Exports of textiles and textile products are increasing and the trend is in the direction of finer quality fabrics and articles finished to a degree which incorporates the art and workmanship of American labor as never before.

"Despite the poor conditions in some of the principal markets for American textiles, such as the Philippines and Cuba, the exports of cotton goods during 1929 exceeded those of 1928 by a considerable quantity. Close to 600,000,000 sq.yd. of cotton fabrics were shipped, in 1929.

TEXTILE WORLD Cotton and Wool Indexes

COTTON INDEX NUMBERS

Date	Cotton	Yarns	Gray Goods	Colored Goods	Aver. for Cloths	Group Average
July 31, 1914	100	100	100	100	100	100
1922						
January	146	168	174	206	191	182
February	141	157	165	209	188	177
April	144	156	168	209	189	178
July	178	182	190	200	195	189
October	177	192	206	201	203	197
1923						
January	225	225	220	230	225	225
February	226	237	225	239	232	233
April	231	239	224	242	233	234
July	217	197	190	236	212	211
October	237	222	212	225	219	219
1924						
January	278	241	228	243	236	239
February	256	220	208	207	208	212
April	220	211	192	194	193	198
July	270	198	186	191	189	196
October	195	196	187	189	188	199
1925						
January	192	197	195	173	184	187
February	197	196	[illegible]	174	185	187
April	196	194	193	180	187	188
July	197	183	185	176	181	182
October	174	189	193	178	186	186
1926						
January	167	175	177	162	170	171
February	165	172	176	160	168	169
April	153	163	161	155	158	159
July	149	149	151	141	146	147
October	106	141	147	144	146	143
1927						
January	107	134	140	140	140	138
February	113	136	143	141	142	140
April	118	136	143	142	143	140
July	143	149	156	145	151	150
October	168	176	184	169	176	176
1928						
January	151	163	166	166	166	165
February	148	159	163	166	165	163
April	164	160	160	165	162½	162
July	174	167	165	168	166½	167
October	157	161	162	164	163	162
1929						
January	162	166	158	169	163½	164
February	162	163	157	173	165	164
April	163½	164	157	173	165	165
July	149	160	149	166	158	158
October	147	160½	155	161	158	158
1930						
January	138	149	141	157	149	149
February	125	144	134	157	145	145

WOOL indexes for February show a further decline of 7 points from January and are on the lowest February level for the past eight years. Wool lost ten points for the month; tops, 11 points; yarns, 4 points, and cloth 2 points. In the closing weeks of February a slight upward turn occurred in wools and tops, and wool combing became more active. March indexes are not likely to show much if any further decline in the general wool group; increase of stability followed by a slight rise in the semi-manufactures seems probable. The cloth index figure, however, is likely to show some further decline owing to recent downward revisions in the goods market.

Cotton in February had another severe slump in price which continued into March, when spot cotton in the first week touched 14.60. The index figure for February shows a loss of 13 points over January. Yarns lost ground, but to a much less degree than the raw material. Gray goods were weak owing to uncertain demand and over-production, but colored cotton goods held firm throughout the month.

Since February, 1929, cotton has lost 19 points and wool 60 points. The severe decline in wool has had serious influence on the manufacturing and merchandising position, although there has been practically no over-production. In cotton the decline was relatively much less than in wool, but mill over-production was, and still seems to be, a feature of the industry, especially at the carded yarn end.

Inquiries regarding interpretation and use of the index numbers may be addressed to TEXTILE WORLD, Boston.

WOOL INDEX NUMBERS

Date	Wool	Tops	Yarns	Cloth	Group Aver.
July 31, 1914	100	100	100	100	100
1922					
January	128	163	179	182	173
February	148	177	185	184	179
April	165	185	185	184	182
July	189	202	196	188	193
October	199	209	208	191	199
1923					
January	212	225	227	203	213
February	215	231	230	216	221
April	222	230	234	225	228
July	222	223	233	228	228
October	205	213	222	224	220
1924					
January	217	227	221	223	223
February	217	230	222	219	222
April	216	230	223	219	221
July	191	209	212	219	213
October	227	237	224	226	228
1925					
January	215	213	211	229	221
February	259	266	253	231	245
April	219	234	230	241	235
July	216	217	216	239	227
October	216	212	212	227	220
1926					
January	215	213	211	229	221
February	209	208	208	226	217
April	181	193	198	224	208
July	173	184	189	215	199
October	178	186	193	209	198
1927					
January	178	187	190	209	198
February	179	186	188	211	198
April	177	182	184	211	196
July	180	183	183	211	196
October	185	185	189	211	199
1928					
January	194	193	186	212	201
February	196	202	191	214	205
April	199	206	198	215	208
July	204	206	203	214	209
October	197	197	203	212	206
1929					
January	199	198	201	211½	206
February	198	196	201	211	205
April	187	189	198	211	202
July	169	170	188	211	194
October	164½	169	188	211	194
1930					
January	148	161	177	211	188
February	138	150	173	209	183

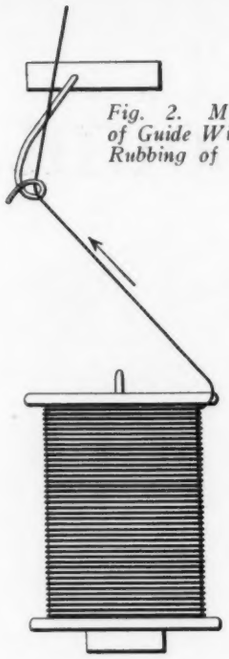


Fig. 2. Misalignment of Guide Wire Causing Rubbing of Yarn.

Manufacture of Rayon Voile Twist

By H. S. E.

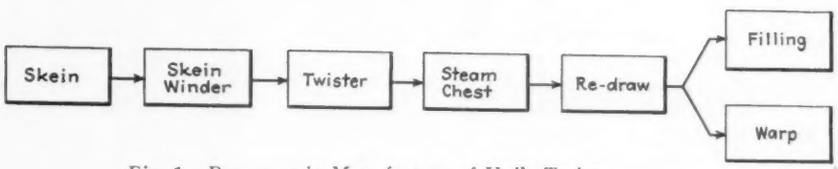


Fig. 1. Processes in Manufacture of Voile Twist

VOILE twist is a single yarn produced for weaving rayon voiles. The growing popularity of rayon voile has led to an ever-increasing range of deniers in its make-up, running from 35 deniers to 150 and coarser. The twist ranges from 30 to 50 turns per inch. The 75-denier material, which is the basis of this article, has been in considerable demand, both for dress and drapery purposes. Warp and filling are generally alike, with a twist of about 30 turns. A flow sheet of the various processes is shown in Fig. 1.

Throwing or twisting can be done economically on a first-time twisting or spinning machine. The section hand on these frames should have regular periods for checking up on the friction of the spindles, since uniformity of twist is absolutely requisite to a perfect product. On the twisting machine, as in every other process where rayon is handled or worked, it is of prime importance that no undue strain or chafing be imposed upon the yarn. Especially true is this in voile twist. Yet, unless constant care is exercised, it will be found that the guide wires will get out of alignment for various reasons, and the yarn will rub on the edge of the spools. This action, which is illustrated in Fig. 2, is apt to break the delicate filaments and cause a deterioration.

The spindle speed is a matter for individual judgment, but 8,000 r.p.m. is a good figure to start from. Should the ballooning prove excessive, a set of ordinary separators can be fitted to the machine if not already on. Or, if the twist is high, approaching that of crepe, the regulation flyer tension may be used.

As it is essential to set the twist, the yarn is wound on special conditioning spools, wooden-barreled, metal-flanged, perforated at barrel and ends. The perforations facilitate entrance of the steam allowing penetration from the center of the spools as well as from the outside. The length of time that the material is kept in the steam chest depends upon the amount of twist inserted; the greater the twist, the longer the steaming. About four minutes for 30 turns, and six minutes for 50 to 60 turns should be nearly right. However, a little experimentation will soon show what is right for the individual mill.

To do a good job, with the least handling, the conditioning spools are placed on metal pin-boards and packed into a specially designed steam-chest truck. It is advisable to have the chest floor even with the mill floor so that the truck can be pushed in and out of the chest on a level, so that one man can handle the exit and entrance of the truck quite readily. Translated into cost-control terms this means that one man is being paid for this job, instead of one and a fraction men.

From the steam chest, the material is taken to the re-draw frames, where it is converted to the regular spools again. It will pay to have the re-draw frames equipped with pin-board holders, so that the yarn boy can place the full boards directly on the machine. The worker thus does not have her attention diverted from her machine by the need of chasing after the material. By permitting her to give undivided attention to the machine, the operator will increase her production and improve the quality.

After re-drawing, the yarn is made into filling and warp. Since the deleterious effects of strains and abrasion are more or less familiar now to users of rayon, it seems almost superfluous to stress the need of alertness to prevent undue stretching and scraping of the yarn. Every surface over which the material passes should be closely scrutinized at regular intervals by the section-hand, and all cut or rough places eliminated, either through smoothing where this is practical, or by the replacement of the faulty part.

The overhead hanger which leaks is still too prevalent a cause of soiled goods to be passed over without a few remarks. Oil dripping on goods, whether in yarn or cloth form, is bad for cotton, wool, or silk; but it is far worse for rayon. It would, indeed, be interesting to have accurate statistics showing the losses the textile industry sustains on account of the oil drop from above.

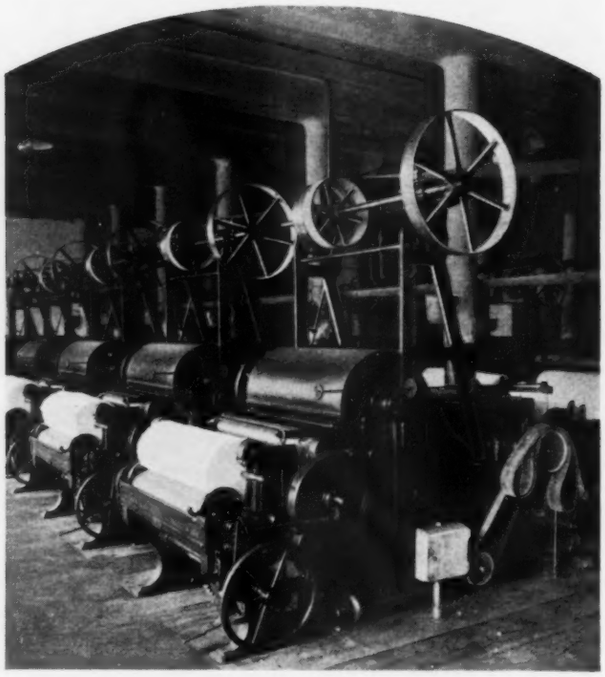
Various schemes are tried to overcome the trouble. One firm, which insists on meticulously clean products from its machinery, has fitted the outlet of its overhead hangers with small pail-like tins which can be emptied from time to time. Another concern is experimenting with a shallow pan running the full length of the bearings.

Mauling the yarn with dirty hands is another evil that helps make life for the operating executives just a ceaseless stream of worries. Only a strict insistence on care in the handling of the yarn, whether in skeins, or on spools, will reduce this fault to a minimum. And rayon voile twist that is to make perfect voile cloth must be free from oil stains and soiled spots.

Spinning Cotton to Count

Requires Attention to Many Details

By William King



VARIATION in the counts of yarn spun is one of the greatest difficulties with which a spinning mill has to contend, and can be divided into two classes. There is first of all, the variation that is due to the using of an inferior cotton for the range of counts being spun. The cotton may be below the required staple length; the cotton mix may consist of several cottons of unequal staple length which will not adequately blend in the processes subsequent to spinning; or a harsh cotton may be used in conjunction with one that is soft, thus preventing perfect cohesion of fibers. Yarn produced from cotton of the above types is usually not only uneven, but is found to have a great variation in count, particularly if a short length is tested. It is obvious that the strength of yarn will decrease according to the degree of unevenness. In addition, such a yarn produces, in the case of knit goods, a fabric that is "patchy" and inferior in quality.

Yarn having the count variation which we are putting in the second classification is not inherently inferior in quality; but, when certain standard-length units of supposedly the same count are taken, it is found to vary in the weight of each length unit. The strength of yarn will vary according to the variation in weight. This variation is due to technical errors in the mode of attenuating the fibers; either the machine settings are wrong or the system of operation is wrong—perhaps both may be responsible to a slight extent.

Variation in the count of cotton yarn is affected by three factors: the type of cotton mixing used, the machinery employed to work the cotton, and the system of operation used in the mill.

The Cotton Mix

Each spinning mill specializes in the production of a standard range of counts of yarn, and it is not difficult to ascertain approximately the type of raw material that is required for these counts. But approximations are not sufficient when dealing with this phase of cotton spinning. The person responsible for purchasing cotton should thoroughly comprehend the reaction of the various types to the card-room processes. Certain cottons require much more carding than others, and this must be considered in a mill that has a limited carding capacity. Harsh cottons, owing to the absence of wax, usually card well, as there is little difficulty in removing dirt, seed, leaf, etc. Generally Oklahoma, Mississipi, and Memphis cottons require more carding than Texas, Arkansas, or Alabama cottons; but obviously much depends on the grades used.

A wise manager blends his cottons so that he can get the best out of his cards, and good carding enables him to use cheaper mixings and obtain a better yarn. Modern conditions of commercial competition demand that the price of the cotton mix should be as low as possible, consistent with the desired quality of yarn; and very often this price can be reduced by adequate blending. Before blending, however, the reaction of each cotton to the card-room processes must be known; otherwise the results may be disastrous.

It is an excellent plan for a mill to have a small sample plant consisting of card, draw frames, flyer frames, and one spinning frame. Small quantities of cotton can be run through this plant, and all relevant data collected before commercial operations are begun. Any improvements on existing systems can be tried out on these machines, thus eradicating interference with normal working. It will be found that the installation will quickly pay for itself and soon be earning dividends, as it is working under actual mill conditions, and the data obtained is reliable. Much is said about research in industry, and that part of it that ought to be undertaken by mill men will be considerably aided by a sample plant of this description. In it problems peculiar to the locality in which the mill is situated can easily be studied.

Type of Machinery

It is obvious that the constitution of the cotton mix cannot be considered apart from the questions of the type of machinery employed and the system of operation used. Each bears directly on the other, but the intention

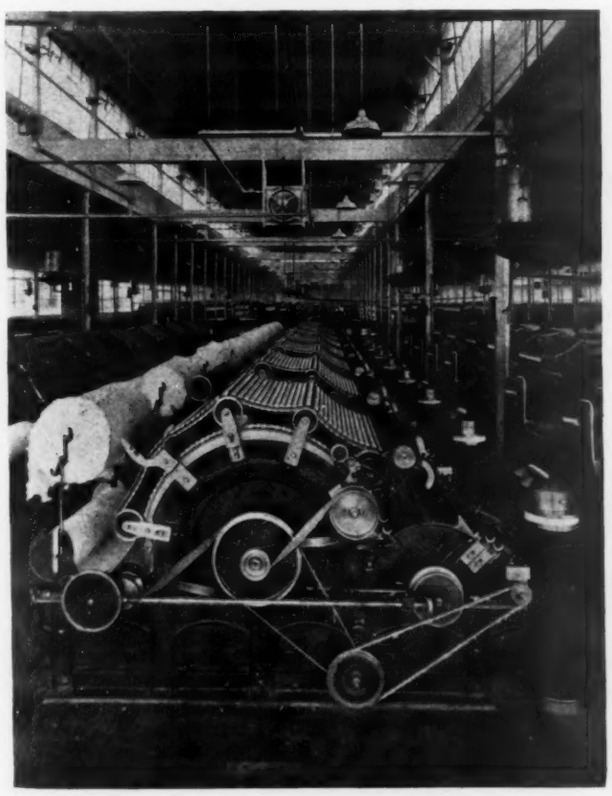
of this article is to treat each aspect of the subject separately, as far as this is possible.

The nature of the card- and spinning-room machinery required to produce a certain range of yarns is determined by mill executives. Once installed, this machinery can be regarded as a fixed factor, although some of the machines must be replaced from time to time by machines capable of performing the same amount of work in a shorter period of time. The speed of this machinery up to its maximum depends on the nature of the raw material, and generally the highest speeds are obtained when a good class of material is used.

A card can run at its highest speed when working on a cotton that contains the minimum amount of foreign matter, just as the maximum spindle speed can be obtained on flyer frames when good cotton is used. The same thing applies to the spinning frame. The quality of the cotton mix can fluctuate only within a certain range for a fixed number of counts. If it becomes excessively low in quality, too much waste is made, production is lost at each machine, and the finished yarn is inferior in quality—resulting in complaints from customers and often in lost orders. If the quality of the mix is too high, the result is that money is given away with each pound of yarn that is sold. A medium course is desirable—one that will provide a cotton mix enabling machinery to run at its highest speed, make the minimum amount of waste, and produce a yarn that is satisfactory in every respect.

Another factor here enters into the discussion, the method of operation and the efficiency of the machinery used. It is well known that diverse opinions exist regarding machine settings for the same class of cotton. Many of them are quite erroneous, as elaborate experimentation has proved that certain methods give the best results.

It is almost unnecessary to mention here the importance of keeping machines in first-class mechanical



ELIMINATING VARIATIONS in the count of cotton yarn calls for ceaseless vigilance over machinery and labor in every operation from the mixing to the spinning. It calls for careful planning and systematic checking up. An experienced spinner here tells what he has learned through practice and research about this important subject.

condition. This is one of the basic laws wherever machinery is used. Rather are we concerned with those adjustable settings that through ignorance and inadequate study and analysis are grossly mishandled, with very disagreeable results.

Picker and Card Rooms

The weight per yard of the finished picker lap is determined by the range of counts being spun, and this range is determined by the highest and lowest number that can be produced from one standard quality of cotton mix. A cotton mix may be evolved to spin counts from 6s to 24s, and the mix is good enough for 24s counts but will not produce a good 30s yarn. On the other hand, the mix may be too good for 6s; but this can be discounted by using fewer processes to produce 6s and so reduce the cost. The count which can be spun with the greatest success from a mix of this kind would be 16s, as it will give the highest production of sound-quality yarn, owing to high machine speeds and decreased number of breakages when compared with 24s spun from the same mix.

If it is desired to spin counts from 24s to 50s or thereabouts, a better-quality mix should be used. The main consideration is that the quality of the mix should be so finely adjusted as to ensure a good-quality yarn within a certain range of counts, and the mix must be kept to this point. The cost of the raw material can be greatly reduced by skillful blending of cottons, and abstaining from using one mix for too great a range of counts.

The following table gives lap weights considered to give good results when spinning the counts mentioned, and refer to finisher-picker laps.

Counts	Lap per Yard in Oz.
8s to 24s	15½
24s to 40s	14½
40s to 60s	13½
60s to 90s	12

Each lap is weighed on leaving the machine and, if it does not come within a prescribed weight, is rejected. It is good practice to test laps periodically yard by yard and ascertain variation. If the cotton mix is suitable for the counts of yarn being spun and the picking-room machinery is efficient and is attended by conscientious operators, a lap of average regularity will be obtained.

The effect of humidity in picker rooms has caused much heartburning recently, and one system is in operation whereby the weight of lap is altered according to the degree of humidity present in the atmosphere of the room. The writer has experimented with this method and met many practical men who have tested

its efficiency. From the data evolved it would appear that the system has many good points, but its disadvantages outweigh these. The system is very much open to abuse from uninterested workers. It does not apply to laps made from dyed raw stock that are often allowed to stand several days before being used, and it is liable to introduce variation in the weight of lap. There is a lamentable lack of information on certain points, such as (1) the humidity-absorption capacity of a certain weight of cotton of a given density in a unit of time, (2) the relative values of different types of cotton as revealed in test one, and (3) the relation between picker- and card-room humidities.

There is no doubt that the stack method of mixing cotton tends toward better blending, and a machine sequence that affords good mixing facilities will produce a superior lap. So much depends on what is required in the individual plant and in the production of commercial yarn, unnecessary expense must be eliminated, and this often means a reduction in processes at the expense of quality.

Irregularities in Carding

If a card sliver is tested for count immediately after stripping, half way through the interval before the next stripping, and again just prior to stripping, it will be found to possess the most disturbing irregularities. The condition in the first case is due to cotton fibers sinking between the card wires. Half way before stripping, the sliver is slightly heavier, owing to the presence of these fibers in the spaces between the wires. Just prior to stripping, these spaces are quite full; consequently the sliver is slightly heavier than at the mid-interval period, and much heavier than it is just after stripping. The obvious remedy is to strip often and light, and reduce the irregularity to a minimum. A card fitted with a vacuum stripper which is constantly in operation or with a continuous mechanical stripper will not be troubled with these difficulties.

Another source of irregularity is the thickness of flat strip made on the card. Very often the flat strips made on a batch of cards which are feeding a line of draw frames will vary exceedingly in thickness. This is bound to affect the regularity of sliver and present additional work to the draw frames. In principle the speed of flats regulates the thickness of strip, and the most satisfactory speed is that which gives a light strip. The main point is that each card should produce a strip of the same thickness, so that variation in weight of sliver may be reduced.

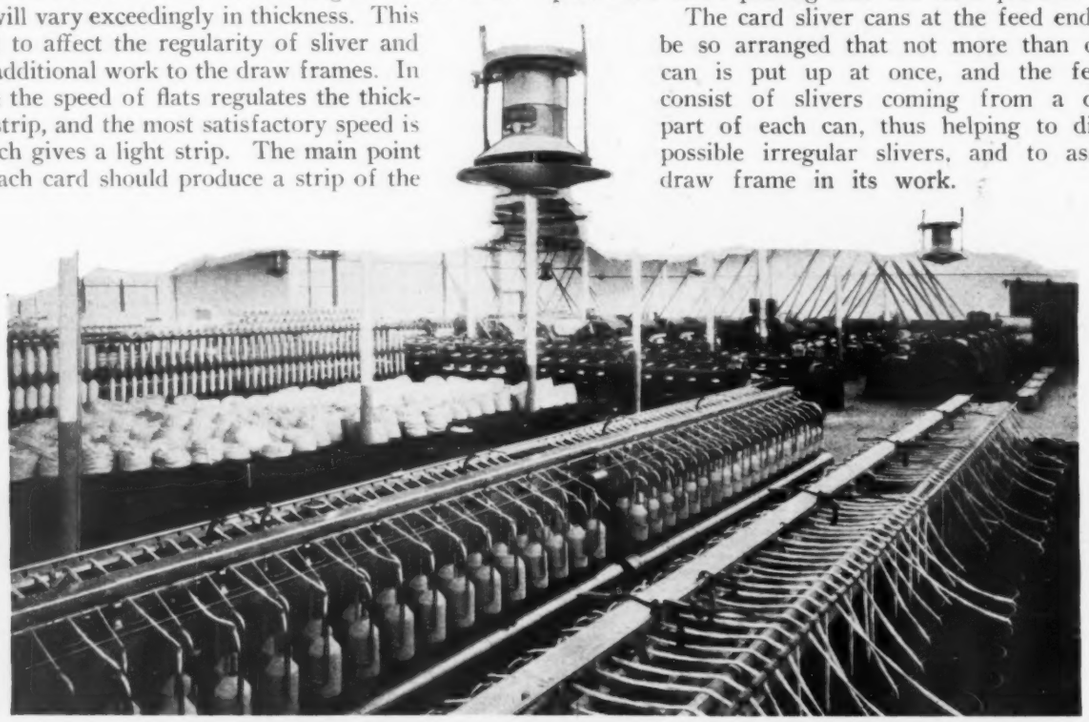
Other factors responsible for sliver-weight variations are licking laps and badly made piecings when putting up new laps. These defects may easily be remedied. It is obvious that cards should be kept in a sound mechanical condition and that the wire should be kept at the required angle and ground at stated intervals; "light and often" is a good maxim to follow. It is well to remember that a card can only do a certain amount of work efficiently; if it is overloaded, inferior sliver will be obtained.

Drawing-Frame Irregularities

The object of the drawing frame is to eliminate irregularities found in the sliver, and this is accomplished by repeating the process of attenuation or drawing. The number of lines of drawing used varies from two to four, according to the class of cotton treated and the results desired. Being that the elimination of irregularity is the only desideratum, the process can be limited to a number which will give the required results. It is found in practice that for counts up to 30s two lines of drawing will suffice.

The testing of draw-frame sliver is done at the finisher head, and one-, five-, or six-yard lengths are usually taken, a short length usually revealing greater irregularity than a long length. It is advisable to take sliver from each delivery head. This testing should take place at fixed intervals, and no less than four times per day of nine or ten hours, if good results are desired. Any necessary changes should be made immediately on detection of sliver variation; and it is good practice to change crown wheels, as these allow of finer adjustment than pinions. A record should be kept showing sliver weights and the necessary corrections. The tests at this stage are among the most important in cotton spinning, as the nature of the cotton mix, the effect of humidity, and irregularities in treatment prior to this stage will all be revealed. By adequate sizing and alteration these irregularities can be prevented from passing into the next process.

The card sliver cans at the feed end should be so arranged that not more than one full can is put up at once, and the feed will consist of slivers coming from a different part of each can, thus helping to distribute possible irregular slivers, and to assist the draw frame in its work.



The electric stop motion for detecting broken slivers is more effective than the spoon-tumbler device, although the latter is efficient if set properly. Whatever device is used, it must be in first-rate mechanical condition and capable of stopping the frame before the sliver disappears into the rollers. The writer recently visited a mill that was complaining of uneven sizings and noticed several draw frames on which the spoon tumblers were packed up to prevent them from falling and stopping the frame. One has to contend with many elements when producing yarn, both mechanical and human. Every phase of the subject must be studied and analyzed, and nothing left to chance. The sizing of sliver at this point should be done by some responsible person, preferably the overseer, because these tests convey to a person connected with the administration of the card room much valuable information.

The calculated drafts should be checked by speed indicators, and feed weights and delivery weights should be compared to ascertain if roller slippage is taking place. Leather-covered top rollers should be in good condition and a leather of suitable weight used. It is good practice to varnish these leathers periodically to maintain a good running surface, and numerous varnish recipes exist which are suitable for this purpose.

Roller settings and front-roller speeds depend on the class of cotton used and the ideas of the management, and the ideal settings for a certain cotton can easily be found by experiment, particularly if a sample plant exists in the mill.

The Roving Frames

Present-day tendency is to cut out roving processes. For counts up to 16s—even when the long-draft system is not used—it will be found that, by adequate setting of rollers, slubber and intermediate bobbins can be used in the spinning frame with good results, thus cutting out the speeder frame.

It is a practice in some mills to size speeder rovings for count, and, if they are heavy or light, to make alteration in the size of pinion. The writer has made several exhaustive tests with this type of sizing to ascertain whether it is really beneficial in reducing variation in count of finished yarn, and has come to several conclusions drawn from much data. The finished yarn will show a minimum variation in count if sizing is done at the draw frame every two and one-half hours, if the necessary alterations are made in weight of sliver, and if the rovings from each flyer frame are sized once per week as a precautionary measure to ensure that the correct pinions are being used for the hank roving produced. It was found that changing speeder pinions caused variation in spinning-room sizings of a greater degree than exists when these pinions are untouched. The finisher head of drawing must be the final checking place for count in the carding department, the next point being the spinning frame.

It is interesting to note the effect of variation in count of flyer-frame rovings on the count of the finished yarn. The defects mentioned in the following discussion are due to incompetent machine tenders.

As one draw-frame sliver goes to produce one end on the slubber, double is rarely caused at the feed end of the frame, but it is caused at the delivery end by the roving breaking as it comes through the rollers and joining to the next end, thus causing a roving of double weight. Some carders will contend that this rarely happens. Perhaps it is so in some mills where capable help is employed, but the writer has in mind a mill producing coarse counts. A large quantity of 4s counts were being spun from 0.6-hank slubbing bobbins, and yarn was repeatedly being found that sized from 2.04 to 2.5. The defect was traced to the slubber, where double roving was being made. If this faulty bobbin had gone through to the spinning frame via the intermediate and speeder processes, the result would have been as follows:

The following practical scheme of drafts for 30s counts is assumed: slubber, .6-hank roving; intermediate, 2.0-hank roving; and speeder, 6.0-hank roving. Double roving is used in the intermediate, speeder, and spinning creels, giving the respective drafts in these machines. Intermediate producing 2.0-hank from .6 slubbing double rove gives a draft of 6.66. Speeder producing 6.0-hank from 2.0-hank intermediate double rove gives draft of 6. Spinning frame producing 30s yarn from 6.0-hank speeder double rove gives draft of 10.

The faulty slubbing bobbin sizes .31, is placed in the creel of the intermediate, and runs with a slubbing bobbin of correct count, the resultant count of feed being .204 instead of .3, producing an intermediate bobbin of 1.34 hank. This bobbin is doubled with an

intermediate bobbin of correct hank in the speeder creel, the resultant count of the feed being .802, instead of 1, producing a speeder bobbin of 4.81-hank. At the spinning frame the 4.81 bobbin is placed with one sizing 6.0-hank, the resultant feed being 2.66-hank, producing a finished yarn that sizes 26.69, instead of 30, an error of 11%.

Intermediate and Speeder

A similar variation is caused by the intermediate and speeder defects; and, in the case of the intermediate, when double roving is used three ends may comprise the feed instead of two. This is a common defect that occurs in any mill, and is responsible for much variation in count. With the above hank rovings and drafts it would produce a yarn sizing 26.48 instead of 30s. Also it must be remembered that, when a defect of this nature is created, one roving is short of the weight that has gone to make the first defective roving, so that two bad rovings are made on every occasion. The other intermediate defect is single, due to the absence of one feeding end, and this would produce a yarn sizing 34.1, instead of 30s.

Three feed ends at the speeder produce a yarn sizing 23.8 instead of 30s. One feed end produces a yarn sizing 40s instead of 30s.

It will be seen that the defects most likely to pass into the finished yarn are those made on the slubber and intermediate frames. Every carding and spinning department catches a large amount of this bad work before it becomes embodied in the finished yarn; but some of it does pass, and to reduce this to an absolute minimum one must consider the quality of cotton used, the efficiency of machine tenders, and the degree of supervision. Unless a high-draft system is being used, a draft of 10 on 30s is the limit. Therefore, in the examples mentioned, counts below 30s to 20s will possess these irregularities in a less degree, owing to the decrease in draft, and this will make the imperfections less obvious and more difficult to locate. The method of creeling bobbins in fly-frames should be such as will ensure that half the bobbins are full—every alternate one—when the other half are half full. This will facilitate creeling and give a better blending of cotton.

It is obvious that roller settings and twist inserted in these processes must be correct, as these bear directly on the regularity of roving produced. Leather-covered top rollers are most commonly used for good results on these frames, and each flannel and leather used should be in good condition. A little extra expenditure on these is often sound economy.

Mule Spinning

It is customary to run mules in pairs, and the creels are thus divided into four sections. It is imperative that the sizes of bobbins in these creels should be so arranged that the bobbins in each section empty in turn. That is, when one section has full bobbins, the next section should just be emptying; and when this has full bobbins, another section should be emptying. Each section should be so arranged that the front row of bobbins empties before the back row.

In testing mule yarns for count, strength, etc., cops are obtained from the most recent creeling of bobbins, as soon as the creel is completed, and thus a definite check is kept on each batch of roving that is put in. If pinion alteration is necessary, then this one section can be altered independently of the remaining sections. In mule spinning every fresh creeling should be sized, but sizing must be done once per day in any case to ascertain the effect of humidity, etc., on count.

A record must be kept showing mule number, quality, hank roving, count, actual count-average of a number of sizings, strength constant, and pinion changes. These headings can be printed and bound in book form, and the same book can be used for ring-yarn sizings, substituting frame number for mule number. This book is invaluable for reference as to the conduct of certain cotton mixes, and the data are available for inspection at any time. All testing instruments must be absolutely reliable, and examined for defects periodically.

Mechanical defects of the mule are sometimes responsible for uneven, fractured, and cut yarn; therefore all parts intended to run in parallel lines must be set true, and all motions arranged to give the best results. Roller settings have an important effect on the evenness of yarn, and the three lines of mule rollers are weighted, so the setting between the front and middle rollers should be such that the distance from center to center slightly exceeds the average length of cotton fibers. For example, should the average length of fibers be 1 in. the distance between front and middle roller centers should never exceed $1\frac{1}{16}$ in. A good setting is $1\frac{1}{32}$ in. If a wide setting is used, weak and uneven yarn will result.

Roller coverings should be in good condition. An efficient system of roller oiling should be employed. Lack of oil on mule rollers causes as much bad yarn as wrong roller settings. The above remarks apply to normal drafting; if a high-draft system is used, both roller settings and oiling system must be revised to cater to the needs of the particular system employed. "Drag" is often used on this machine to draw out thick places, and if used carefully can be beneficial.

Ring Spinning

The system of putting in rovings at the mule can be adapted to the ring frame. The object is to avoid haphazard creeling in of rovings, with its consequent disadvantages. The remarks on sizing which we have made in connection with mule spinning also apply to the ring frame. Frame roller settings, however, differ from those on the mule, owing to a different layout of rollers and the principle of self weighting. The writer ascertained from personal experience at several mills where four lines of rollers are used with only the front roller being positively weighted, and where cotton mix of average 1-in. staple length is used, that a roller setting of $1\frac{1}{32}$ in. between centers gives the greatest strength and evenness of yarn. The main principle of all high-drafting systems is close setting of rollers, or an arrangement used to attain this effect; and close setting is beneficial under ordinary drafting conditions, consideration being paid to layout of rollers and bulk of cotton passing between them. Remarks on mule roller coverings and oiling apply to ring frame.

If mechanical defects on this frame—such as worn rings, untrue spindles and thread wires, defective travelers, defective traverse motion, and worn cap bar nebs—are eliminated (they should not exist in a well-organized spinning room), the chances of producing uneven yarn are greatly reduced. Variation in count can be caused by two ends running together in front of the rollers, and by three ends of roving passing through one guide eye when using double roving. Efficient spinners will not permit these irregularities.

Japan's Export of Rayon Goods Expands

THE last twelve months have seen rapid expansion in the consumption of rayon in Japan, though the market has been exceedingly difficult for the yarn producers, and price cutting has been the feature throughout the year. To what extent production has increased during 1929 is rather difficult to estimate in view of the several millions of stocks left over from the previous year, but increase approximated 3,000,000 to 4,000,000 lb. and total production may be estimated at 18,000,000 lb. Stocks are not expected to be as large at the end of 1929 as was the case a year previously, but to keep the consumption up, a steady decline in prices has been necessary.

The Teikoku Artificial Silk Co., Ltd., the most important producing company, has been able to maintain its prices at a higher level than any of the smaller concerns, and by quoting the prices of this firm's standard yarns, a good idea is obtained of the way in which prices have fallen. In the first quarter of the year the price for 150 *B* was about 233 yen per 100 lb. By July it had fallen to 186 yen, and in October it was round about the 150 yen mark. The competing companies were selling 150 denier *B* quality yarn in October at 130 yen. Taking the yen at about $0.50, the prices of the above yarns in October were $0.72 for Teikoku and $0.64 per lb. for other types.

Production—The bulk of the Japanese output is turned out by the Teikoku and Asahi companies. Both these concerns have increased their output in recent years, and the production of the former must now be over 8,000,000 lb. while that of the latter is more than half this amount. The remainder of the production, all of which is viscose, is divided between some seven or eight smaller concerns. The most important of these are the Toyo Rayon Kaisha which has very extensive production plans and a present capacity of over 2,000,000 lb., the Japan Cotton Spinning Co., and the Japan Rayon Co., each with substantial capacities. There are several concerns which have not yet reached the production stage. In the early part of the year the Japan Bemberg Corp. was formed to work the "Bemberg" patents, and is to have a productive capacity of over 2,000,000 lb.

Imports—Despite the overproduction during 1929, imports show a substantial increase, largely due to rebates on yarns imported for the manufacture of piece-goods for export being increased. Imports of rayon yarns during the first eight months of the year amounted to 445,650 lb. valued at 614,255 yen, which compares with a total of 254,640 lb. in the whole of 1928. Italy was the most important supplier sending 299,487 lb. in the first eight months of the year. At present Japanese exports of rayon yarn are exceedingly small, and have not tended to increase during 1929.

Exports Increase—The big feature of the rayon industry in 1929 has been the vast progress made by Japanese manufacturers of rayon goods in the export markets. At the time of writing, the latest details available are for the first eight months of the year, during which time 26,485,391 yd. valued at 16,375,136 yen were exported. Exact details for 1928 are not obtainable, but for the whole year exports of rayon goods did not exceed 12,000,000 yd. This rapid progress has largely been made at the expense of Britain, and to some extent Italy, and Japan is now the leading supplier of rayon goods to most of the eastern markets.

It should be pointed out that Japanese cotton and rayon mixture fabrics are not of poor quality, as might be expected, but in almost all markets the average value of the Japanese article is considerably higher than the similar Italian article. This is largely why Britain has felt the keenness of Japanese competition most severely. Japan has to a large extent gone in for fabrics containing a fairly high percentage of rayon, and while Italian and British goods have a rayon weft those from Japan usually have the rayon in the warp. In the following table, details of the Japanese rayon exports are shown:

	Jan.-Aug., 1929	April-Dec., 1928	
	Yd.	Yen	Yen
China	3,257,340	2,068,310	1,503,000
Kwantung	2,999,893	2,096,442	1,636,000
Hong Kong	4,193,099	2,441,130	1,345,000
Philippines	2,901,301	1,812,689	856,000
Malay States	3,584,090	2,058,507	400,000
Dutch East Indies	2,968,766	1,793,293	393,000
British India	5,655,050	3,558,309	1,039,000
Total	26,485,391	16,375,136	7,306,000

Prior to 1929 the three Chinese markets were the only ones where Japan was anything like the main supplier. During the past year these Chinese markets have taken larger amounts than before, but the most remarkable increases have occurred in the other eastern markets. Trade with the Philippines in the first 8 months of 1929 was 2½ times the value it was in the previous nine months, in the Malay States it was 5 times the value, and in the Dutch East Indies it was 4½ times the value. British India is an exceedingly important market, where competition between Italy and Britain had been keen for some years. At the beginning of 1928 Japanese competition in that market was scarcely known, but throughout the year imports from Japan increased, and during 1929 Japan took the lead in this market, as shown in the following table of Indian imports of cotton and rayon mixtures between April and October in each year.

	1929		1928	
	Yd.	Lakhs	Yd.	Lakhs
Japan	9,166,921	60.34	1,073,559	8.74
Italy	6,930,301	30.67	11,942,691	61.86
Britain	4,358,119	25.13	9,330,826	61.22
Switzerland	2,722,794	18.70	3,528,428	28.50
Austria	837,351	14.80	1,480,971	10.46
Germany	554,486	6.95	1,886,122	20.36
Total	26,092,143	156.10	31,600,624	208.17

Outlook Cheerful—The general prospects for the Japan rayon industry seem to be particularly good, especially in view of the low cost of weaving. At present not much attention has been paid to the home market, chiefly because quicker payment is obtainable for exported goods, and the bulk of the home demand is for comparatively poor-quality goods for which better prices are obtainable abroad. If Japanese production grows too large for the home mills, Japan may enter the field as a yarn exporter, and it seems likely that in such case, she would have considerable advantage over European countries in cost of production.

Dyeing Vat Colors on Silk

By Raymond Curtis, M.Sc., A.I.C.
Manager, Quidnick Dye Works, Inc.

DEMAND for guaranteed fast shades on silk has stimulated interest in the application of vat colors to this material. Mr. Curtis, after stating the difficulties encountered in producing fast dyeings, outlines the methods most frequently employed.

THE silk dyer, in common with every other class of dyer, is continually being pressed to dye faster colors—particularly colors that the manufacturer, converter, or retailer can guarantee as "fast" and which are replaceable in case of fading. It is obvious that the ideal to be aimed at in any guarantee is absolute fastness of color to all agencies to which the fabric can be subjected. While there are very few shades dyed that reach this ideal, selected vat colors on cotton materials very nearly approach it, satisfying for all practical purposes this demand for guaranteed fastness.

The plea from many quarters for vat-dyed silk is of course intelligible from this standpoint of a safe guarantee; and the question naturally arises whether it is not possible to solve the problem of by utilizing the vat colors and thus procure a superlative fastness. At present the silk dyer tries to meet the degree of fastness which is considered adequate for any particular purpose; for instance, no special light or washing fastness is given to silk for evening wear; tapestry is given light fastness, but no washing fastness; while in the case of tub silks a washing fastness to withstand soaping at 105° F. has been considered adequate. But now that the vat colors are available to give "guaranteed fast" shades, there seems no reason—to the layman at any rate—why their use should not be extended to silk in the same way as cotton. The present article indicates some of the difficulties which beset the path of the silk dyer in his endeavors to this end.

Difficulties in Vat Dyeing

In the first place, it should be realized that a very large proportion of the silk used today is tin-weighted, which at once eliminates the possibility of its being vat-dyed. It is not that the vat colors cannot be applied, but all the difficulties of vat dyeing pure silk are so aggravated in the case of tin-weighted silk that successful dyeing on the large scale is practically impossible. Even if the difficulties of vat dyeing were successfully overcome, since the life of tin-weighted silk under the best conditions is relatively short, there would be no useful purpose served in applying expensive, permanent colors to a short-lived fabric.

In considering the application of vat colors to unweighted silk the manipulation of skeins presents no special difficulties, but in the case of piece goods the problem is a very real one. The usual type of silk vessel (Fig. 1) in which possibly 90% of all-silk piece goods are dyed is obviously very unsuitable for vat dyeing because of the long exposure of the goods to the oxidizing action of the air. But immediately one tries any modification of this machine and attempts to use, say, the wool type (Fig. 2) with only a short length of cloth exposed to the air the problems of level dyeing and fraying become acute. Even if these be satisfactorily overcome, the extraordinary difficulty of getting an even oxidation of the leuco compound when the goods are in the rope form makes any such methods of vat dyeing impracticable. Methods can be devised, such as the suspending of the silk from sticks in the degumming tank (Fig. 3), for keeping the fabric submerged at open width, but these methods are very unproductive, and except for tints, extremely costly.

It is evident therefore that any development which will permit the use of the ordinary silk-dyeing equipment will be an important step towards solving the problem of vat dyeing silk piece goods. At present the range of Indigosols is limited and includes vat dyes of inferior light fastness, but insofar as these dyestuffs can be applied like ordinary acid colors to the silk fiber they make the vat dyeing of silk piece goods feasible. Some silk dyers have condemned these dyestuffs (Indigosols) owing to the great difficulty of dyeing to shade, and it is of course a very risky business adding fresh dyestuff to the boiling dyebath or relying on the exhaustion of the bath to get the correct shade. But for pale and medium shades on some fabrics it should be possible to get satisfactory dyeings to shade by padding the Indigosols on the silk and then developing in the silk vessel. It might be thought possible to utilize this method for padding reduced vat colors on the silk, but the color value is very poor and the same difficulty of getting

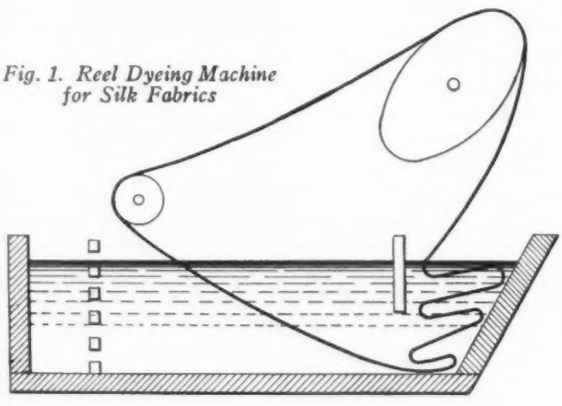


Fig. 1. Reel Dyeing Machine for Silk Fabrics

an even oxidation in the rope form presents itself as when dyeing in the rope form.

Where it is possible to run a silk fabric on the jig it is a relatively easy matter to dye with vat colors, but unfortunately there are not many all-silk constructions which are amenable to roller traverse. Owing to the elasticity of the silk fiber any variation in the tension brings about alterations in the fiber length. Local variations of tension due to slight differences in the fibers themselves, to the weaving, the jig rollers, etc., are unavoidable and these invariably give rise to creases in the cloth and, consequently, streaky dyeings.

Production of Fast Shades

If, therefore, silk piece goods must have excellent washing fastness together with very good light fastness, it will generally be necessary to consider one of the following procedures:

1. Dyeing with Indigosols;
2. Dyeing in the degumming tank (or similar unproductive and costly method) with vat dyes;
3. Manufacturing the cloth from vat-dyed yarn;
4. Sacrificing some fastness and utilizing developed or other dyestuffs instead of vats.

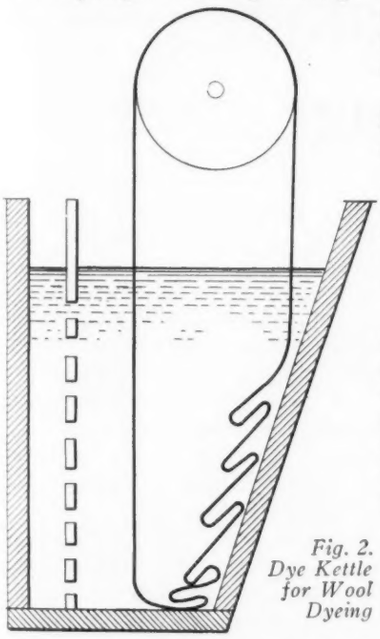


Fig. 2. Dye Kettle for Wool Dyeing

So far the difficulties of manipulating piece goods have been considered, but there are many problems in the vat dyeing of silk which affect both piece and skein dyeing. The problem of dyeing to shade is of course the same problem which faces every vat dyer no matter what the material he is working on, but in the case of silk it is a far more serious thing to attempt to correct off-shade, streaky, or uneven dyeings, than with cotton. While the latter can be redyed several times, and if necessary, partially stripped without any serious injury, it is out of the question to subject the silk fiber to any such treatment without making it valueless.

In the past, silk has been very largely dyed with acid and basic colors, whereby good matches can be obtained quickly. With these colors an excess of dyestuff can be easily removed by "thinning the liquor," so that the dyer is not obsessed by the fear of getting the shade too full. This quick dyeing in a slightly acid bath gives the brightest luster, preserves the fiber strength and in the case of skein silk minimizes winding troubles, setting a standard in these respects, which it is impossible to achieve with vat dyeing. Not infrequently the statement is made that silk can be vat dyed without loss of luster; and while in a quick dyeing the loss of luster may be negligible, yet in view of the well-known harmful effect of alkali on the silk fiber it is hardly to be expected that vat-dyed silk can equal in this respect silk dyed with the easier working acid or direct colors. For many purposes of course, the superlative fastness properties of the vat-dyed silk will quite offset any slight loss in luster, but this does not make the loss of luster any less real, and a dyer who imagines otherwise is living in a fool's paradise.

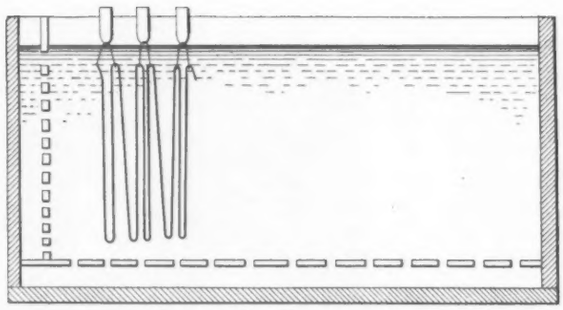


Fig. 3. Degumming Tank for Silk Fabrics

Strength of Vat-Dyed Silk

The effect of vat dyeing on the strength of the fiber is of course an important matter, and very divergent views have been held on the subject. The British Silk Research Association took up this question some years ago, and in two reports on the "Effect of Vat Dyeing on the Strength of the Silk Fiber" (*B.S.R.A. Reports* 23 and 29), it was shown that a normal dyeing operation and one redyeing have little or no more deleterious effect on the tensile strength than an ordinary acid dyeing.

There are a number of products on the market for which is claimed the property of preserving the strength and luster of the silk fiber during its immersion in the alkali bath, probably the most widely used being Protectol. There is however considerable difference of opinion amongst silk dyers as to the degree of protection such agents afford, and they are certainly not to be regarded as having solved the difficulty of treating the silk fiber in a hot caustic liquor.

Various attempts have been made to avoid altogether the use of a strongly alkaline bath in the vat dyeing of silk. It is possible to decrease the alkalinity by the substitution, wholly or in part, of such substances as sodium phenate, naphtholate, etc., for the caustic soda.

This method, however, is not applicable to all the vats, and dyers who have tried it have had great difficulty in getting consistent results. The most promising field for getting vat shades without the use of caustic liquors lies in the development of the water-soluble compounds of which the Indigosols are the most important examples. (The Soledon colors are a similar class.)

From what has been written regarding the danger of injuring the silk fiber in the vat-dyeing process it will be readily understood that the type of silk and the nature of the yarn or fabric play an important part in the resistance offered to the development of "lousiness" and loss of luster. The wild silks offer the best resistance, and of the cultivated silks it may be said that in general, the better the grade, the more satisfactory it is for vat dyeing. This applies to spun silks also, it being almost impossible to get satisfactory results on the lowest grades of spun silk.

Cost of Vat Dyeing

In computing the cost of vat dyeing and comparing it, for example, with acid dyeing it is necessary to take into consideration: (1) the heavier cost of dyestuffs and chemicals; (2) the longer processing, with heavier

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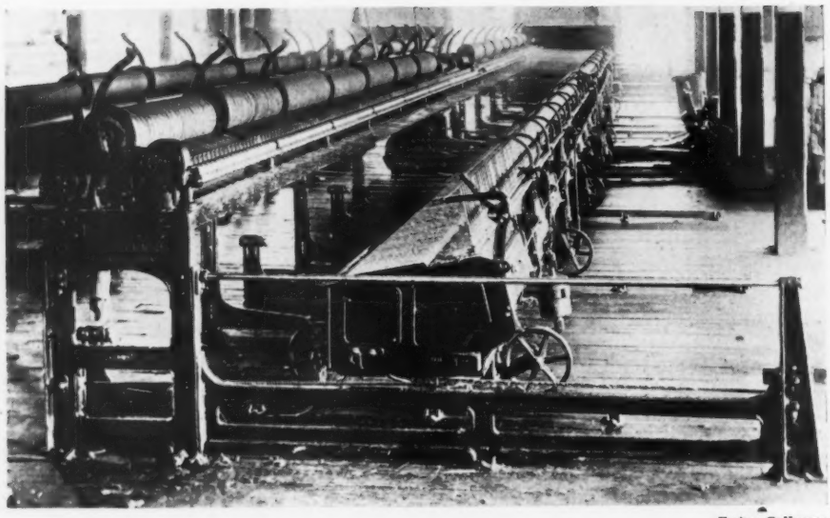

Ewing Galloway

Eliminating Fault Makers in Woolen Spinning

By Richard Jackson

TO UNDERSTAND the self-acting mule perfectly requires practical experience over a prolonged period, and calls also for contact with the various materials which are used, and with the varying conditions which exist. Understanding cannot be complete without experience in the spinning of a variety of counts. With this knowledge acquired, it is possible to meet every problem and difficulty with a trained mind, aided by diligent study and experiment. Even a trained mule spinner must be prepared to violate at times laws that he may have formerly considered inviolable. This applies particularly to problems relating to drafting, as it is at this point that the thread is actually made. If too little twist is inserted during this period, an uneven yarn results; while if the twist is excessive, ends break down, entailing much piecing, waste making, bad yarn, and other attendant evils.

It is practically impossible to produce roping at the condenser which is exactly equal in volume throughout its entire length. This being so, it is the duty of the spinner to level up these inequalities, a result accomplished by regulating the amount of twist imposed during the drawing operation. As drafting takes place the twist runs into the smallest places first and binds the fiber so tightly together that further drafting is resisted at these points. The thicker portions of the rovings with less twist are now drafted down until levelness in diameter and uniformity in volume are established throughout the length of yarn between the delivery rollers and the spindle tops.

Altering Amount of Twist

Although rules for twisting during drafting may be given, they are of suggestive or approximate value only, as the correct amount varies greatly with the count and the length and diameter of the material forming the blend. Finer counts require more drafting than heavy counts, but a good practical knowledge is necessary to decide the best amount. A good spinner can always tell by touching the yarn whether the drawing is being done in the best manner. Any required alteration will be made by changing the speed at which the carriage travels away from the rollers during drafting. If more twist is required throughout the draw, the pinion wheel which controls the carriage will be replaced by a smaller one, which has the effect of drawing the carriage slower and allowing more twist to go into each inch of yarn. Another method of altering the amount of twist during drafting is by changing the slow-speed rim on the headstock, a smaller rim reducing the speed of the spindles and incidentally the amount of twist inserted in the yarn.

Occasionally the yarn draws correctly until just before the carriage reaches the end of the stretch, when the threads become too tight and break down under the strain. The fault is commonly caused by the delivery being too short and may usually be remedied by moving the carriage scrolls slightly backward. The scrolls which draw the carriage out are so made that the speed of the carriage is gradually decreased from the time it reaches about half-way until the end of the draw. By moving them slightly backward and forward the threads can be drawn tighter or slacker, as desired. At the end of the draw, the threads should be fairly tight, with the fibers set closely, and any further drafting made almost impossible; after which it is only necessary to insert the remaining twist at a faster speed to produce a strong and even thread.

It is very important that the amount of twist throughout the length of yarn be equal, as any unevenness will show in the finished cloth, the tighter-twisted portions

appearing darker in the finished piece. No definite rule as to the amount of twist for any given count can be laid down, as other important factors must be taken into account. Warp yarns should be given as much twist as possible, however, without making them hard and brittle. An average 4-run yarn should have about 17 turns per inch to give the best results. During the twisting of the yarn the jacking-in motion should be used to the best advantage by keeping the threads fairly tight during the inward motion of the carriage.

Uneven Drafting

Care must be exercised to avoid the drafting of the slubbing before the delivery rollers cease to revolve, as this results in uneven yarn. Uneven drafting may occur at two points; viz., (1) between the condenser spools and the delivery rollers, and (2) between the delivery rollers and the spindles. The former is caused by the drums carrying the spools revolving too slowly. As the slubbing is in its loose, open condition, any unevenness coming from the condenser will be increased. Occasionally the spools give off the roving ends slacker at one point than at others; this is because the condenser rubbers are badly worn or badly set, and the only remedy the spinners can apply is to reduce the surface speed of the spool drums slightly. This produces the proper tension in the slack ends but tends to produce uneven threads by drafting the others slightly.

Uneven drafting is caused at the second point by the carriage traveling away from the rollers faster than the roving is delivered. This is a much greater evil than the former, and all mules admit of correction in this respect. The carriage must travel faster for a long-length delivery than a short one, because in the latter case the rollers will overrun the carriage towards the end of the delivery on account of the band getting down on the lower part of the scroll. If this defect is allowed, a short length of soft slubbing wraps around the spindle tops, getting neither draft nor twist.

Sometimes yarn may be found with a great many small places in it, caused by (1) badly condensed slubbing; (2) slack drawing (i.e., insufficient twist inserted during drafting); (3) slubbing condensed too small in relation to the spun count; (4) slack rim band, causing the spindles to vary somewhat in speed on account of the band slipping at intervals; (5) slack spindle bands, in which case individual threads would show the defect; and (6) bad piecings or tyings of broken ends.

Sometimes the minders will place the broken slubbing on the spindle top as the carriage leaves the rollers; and, immediately after the delivery stops, they piece up the end, drawing a considerable length of spun yarn from the cops to join it. This results in a length of thicker yarn, as the delivered portion receives no drafting. The correct method is to place the end on the spindle top as the carriage commences its outward run, allow it to remain until drafting is completed, and then quickly piece it up or tie it as the twist is being inserted.

Uneven yarn may be caused by allowing the cops to become too full on the spindles; because when the top of the cop is near the point of the spindle, a length of spun yarn tends to slip off, thus giving less draft to this length delivered and producing thick threads. Another cause of uneven yarn is careless starting up of a new set of cops; because, if the whole length of spun thread is not wound on to the cop, any slack tends will slip back during drafting and produce thick threads or "snarls." Another cause is overfull spools made on the condenser, as the threads in such cases do not unwind at a steady rate. To avoid uneven twist, keep the rim and spindle bands in good condition; otherwise there will be slipping, which results in irregular loss of twist.

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S.T.A. to Form Hosiery Division

PRELIMINARY steps toward the formation of a hosiery division of the Southern Textile Association were taken by representative executives and superintendents of hosiery mills, together with officials of the association, in a meeting at the Sheraton Hotel, High Point, N. C., March 5. T. W. Mullen of Rosemary Mfg. Co., Roanoke Rapids, N. C., chairman of the board of governors, presided.

After several members of the association had outlined the work of the organization and described some of its results, a number of hosiery men expressed their approval of the movement to form a division which would be composed of superintendents, assistant superintendents, and overseers of knitting and hosiery finishing, along lines similar to the formation of other divisions of the Southern Textile Association.

It was decided to present the plan to hosiery mill executives of the Carolinas and Virginia, with the idea of obtaining their cooperation in the organization of the division, and to arrange a joint meeting of hosiery men and hosiery yarn spinners to be held in April. Such a meeting, it was felt, would prove to be of benefit to yarn manufacturers and hosiery men alike.

Walter C. Taylor, secretary of the association, presented a list of questions by way of illustrating to the hosiery men the type of subjects discussed in divisional meetings. Although no technical discussions were conducted, it was pointed out that at a later meeting of hosiery men the following questions will be submitted:

1. How do you eliminate sleaziness?
2. Which is better, the two-bath or the one-bath method of dyeing?
3. What is the best temperature to use on your forms for silk or rayon hosiery?
4. Do you prefer bottle bobbins or cones, and why?
5. Do you believe in having humidity control in your knitting room; if so, how much?
6. Which is better, artificial light or daylight?
7. What type of artificial light do you prefer?
8. How often do you change sinker on fine-gauge work?
9. What method of lubricating do you advocate for your machines?
10. How do you condition your rayon for knitting?
11. What is the best method for dyeing rayon hosiery having a mercerized top, heel, and toe?
12. How do you reclaim your defective merchandise?
13. Do you back wind your half-hose tops or sell them for waste?
14. How do you locate defective needles on a circular machine?
15. How do you prevent sinkers from clogging with lint?
16. Do you check your needle breakage?
17. Which do you prefer, 23% or 25% boil-off on silk, and why?
18. Have you tried hydroscopic silk, and what were the results? Or do you prefer to back wind?
19. What do you consider the major requirement of a good knitting yarn?

NEWS about MEN

B. B. GOSSETT, president of Chadwick-Hoskins Co., Charlotte, and A. G. MYERS, president of Myers Mills, Gastonia, have been appointed by Gov. Gardner among the 15 delegates from that State to the Southern Industrial Conference to be held at Little Rock, Ark., March 11-12. JOHN PAUL LUCAS, of the Southern Power Co., Charlotte, is also named as a delegate.

NATHANIEL G. ROBERTSON, JR., has been named president of the Scranton (Pa.) Lace Co. He succeeds PAUL B. BELIN who died Feb. 27.

A. F. HOBBS, president of the New York Mills (N. Y.) Textile Corp., has been elected a director of the newly organized Mutual Insurance Co. in that district.

L. N. LITTAUER, president of the Gloversville (N. Y.) Knitting Co., has been awarded the Legion of Honor decoration by the French government because of his many benefactions to hospitals in that country.

ROBERT LASSITER, Charlotte, N. C., president of the Mooresville (N. C.) Cotton Mills, and Mrs. Lassiter recently donated to the State of North Carolina a tract of more than 20,000 acres on the coast, which will be known as the Hanes-Lassiter State Game Refuge.

Red River Cotton Mills, Rock Hill, S. C., at a recent meeting of stockholders and directors, elected the following officers: ALEXANDER LONG, SR., chairman of the board; YORK WILSON, president and treasurer; DANIEL HEYWARD, vice-president; C. P. SIMPSON, secretary. The board of directors consists of the following: ALEXANDER LONG, SR.; YORK WILSON, DANIEL HEYWARD, GEORGE NORWOOD, of Greenville, S. C.; S. N. JOHNSON, JR., J. E. MARSHALL, R. M. LONDON, and J. M. HEMPHILL.

STANLEY A. RUSSELL, New York, retired as a director of the Graton & Knight Co., Worcester, Mass., at its annual meeting held on March 5, when all the other directors and officers were re-elected for the ensuing year.

EDWARD MURPHY, president of the United Waste Mfg. Co., Cohoes, N. Y., has sailed on an extended Mediterranean trip.

CHARLES H. DIMICK has resigned as president of the Associated Dyeing & Printing Corp., Paterson, N. J., and is now connected with the National Silk Dyeing Co.

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WALTER H. TRUMBULL and CHARLES SARGENT have been elected directors of the Bigelow-Hartford Carpet Co., Thompsonville, Conn., to succeed ROBERT WINSOR and F. G. WEBSTER, deceased.

FRED B. THAYER, formerly connected with the Thayer Woolen Co., North Oxford, Mass., sailed on March 7 for a European trip for the benefit of his health.

GEORGE B. MCCALLUM, chairman of the board of directors of Propper-McCallum Hosiery Co., Inc., sailed March 8 for France and Egypt. He plans to be away for three months.

H. D. LEONARD is now treasurer and general manager of the Standard Looms, Inc., Spartanburg, S. C.

EDWARD V. PETERS, vice-president in charge of sales and a director of the Tubize Artificial Silk Co. of America, has tendered his resignation. Mr. Peters will enjoy a vacation before re-entering active

Edward V. Peters

business life. He was associated with the Tubize company for three years. No successor has yet been appointed.

ALBERT L. SANDERS, secretary and treasurer of the Cherry Valley (Mass.) Woolen Co., who lives in West Medway, Mass., has been nominated by Gov. Frank G. Allen of Massachusetts as special justice of the District Court of Western Norfolk, Mass.

ROBERT R. WEST, former secretary, treasurer and agent for the Lancaster Mills, Clinton, Mass., who became production manager and vice-president of the Riverside & Dan River Cotton Mills, Dan River, Va., on March 1, was tendered a farewell dinner by his former associates before leaving Clinton and presented with a wrist watch by WAYNE M. PIERCE, superintendent of the plant, who acted as toastmaster.

GEORGE CORNELSON has resigned his position as secretary of Lydia Cotton Mills, Clinton, S. C., and will become connected with Spartan Mills, Spartanburg, S. C.

J. J. CORRIGAN, secretary and treasurer of the Lock Knit Hosiery Mills, High Point, N. C., at a recent meeting of the directors of the High Point branch of the North Carolina Bank & Trust Co., was elected to the directorate of that institution.

WALTER E. SCHUSTER, treasurer of the Schuster Woolen Co., and the Hayward Woolen Co., both of East Douglas, Mass., has been nominated by the Republicans as a candidate for selectman of the town for three years.

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DR. CHAS. E. MULLIN, professor of chemistry, rayon and dyeing, Clemson College (S. C.) Textile School, recently visited New Orleans, La., where he addressed the local section of the American Chemical Society upon some of the recent developments in the rayon industry. Dr. Mullin had just completed a trip on which he visited several rayon manufacturing plants in the South.

RALPH BORSODI, spoke March 2 at Knitters Hall, Philadelphia, on the "Crisis in Textiles." It was the second of a series of lectures arranged by the District Council of Textile Workers and the American Federation of Full-Fashioned Hosiery Workers, more than 400 attending.

CHARLES E. INCHES, former treasurer of the Androscoggin Mills, Lewiston, Me., has been elected treasurer of the Lancaster Mills, Clinton, Mass., to succeed ROBERT R. WEST, resigned, and RALPH J. YOUNG, office manager of the plant has been elected clerk of the corporation.

WM. A. MOORHEAD, agent, Joanna Cotton Mills, Goldville, S. C., was elected to the board of directors of that company at the annual stockholders meeting March 5. He succeeds the late STEWART HARTSHORN, who died recently.

P. R. DUFFY, who has been connected with the Viscose Co. for a number of years and later with the Celanese Corp. of America, is now associated with the A. M. Johnson Rayon Mills, Inc., Burlington, N. C.

G. ROBERT DODSON, Portland, Ore., production manager of Jantzen Knitting Mills, will spend some time at the new plant of the company at Vancouver, B. C., Can.

CLINTON S. MARSHALL, former district manager of the American Steel & Wire Co., Worcester, Mass., now retired, and Mrs. Marshall, celebrated their 50th wedding anniversary at their home in Grafton, Mass., on March 4.

RICHARD HEYWOOD, assistant purchasing agent for the Draper Corp., Hopedale, Mass., and Mrs. Heywood, are passing a vacation in Bermuda.

HEXT PERRY, sales representative, Detroit Graphite Co., with office in Greenville, S. C., has been receiving congratulations from his friends in the textile industry for his feat in making a hole-in-one on the Greenville Country Club course March 8. He was playing in a foursome with Brown Mahon, Horace Baker and Dudley Bryan, all well known in southern textile circles.

HAROLD D. HOLMES, formerly of McCampbell & Co., has joined the New York selling organization of the American Silk Spinning Co.

THOMAS HENDERSON of the sales force of the Draper Corp., Hopedale, Mass., has been transferred to southern territory, where he will move his family.

ARTHUR A. MURPHY, sales manager for Industrial Rayon Corp., who has had his headquarters in New York for several years, will move to the Cleveland office of the company. HORACE G. WOODBURY will be in charge of the New York office of the company.

W. L. GODDARD, for many years with Walworth Bros., Inc., Lawrence, Mass., is now designer at the Atlantic Mills, Providence, R. I.

DAVID POSNACK, formerly of Southbridge, Mass., is now chemist at the new plant of the Rock Hill (S. C.) Printing & Finishing Co.

ALBERT E. FAWCETT, recently superintendent of weaving at the Boston Mfg. Co., Waltham, Mass., and an expert weaver is now assistant superintendent of shuttle production in one of the plants of the U. S. Bobbin & Shuttle Co.

J. A. GRAHAM, superintendent of the Spencer Mountain Mills, Ranlo, N. C., has tendered his resignation.

ARTHUR BURROWS, who came to this country from England many years ago to become associated with his father, who was superintendent of the dyeing department of United States Finishing Co., in Pawtucket, R. I., is now superintendent of the dyeing department of the Rock Hill (S. C.) Printing & Finishing Co.

COVERT FILZ, heretofore in charge of the color shop and printing at the Eddystone mill of the Joseph Bancroft & Sons Co., Wilmington, Del., has been appointed assistant superintendent at the mill, working under James Foley, who recently became supervisor of printing at the plant.

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CARL R. HARRIS, who recently arrived in Chester, S. C., to assume his new duties as resident general superintendent of the Aragon-Baldwin Cotton Mills, Inc., has joined the Chester Rotary Club.

E. O. C. HILL has resigned as superintendent of the Star Worsted Co., Fitchburg, Mass.

CLAYTON HOOKS has assumed his new duties as assistant superintendent of the Chadwick-Hoskins Mill, Plant No. 2, Charlotte, N. C.

D. R. LAFAR, formerly superintendent of the Harden Mfg. Co., Worth, N. C., has accepted the position of superintendent of the plant of the Spencer Mountain Mfg. Co., at Ranlo, N. C., succeeding J. A. GRAHAM, who is now connected with the Ellenboro (N. C.) Mfg. Co. as general manager.

A. I. MCDONALD has again assumed the superintendency of the St. Pauls (N. C.) Cotton Mills, a position he formerly held.

J. R. MURPHY, superintendent of the Waverly Mills, Inc., Laurinburg, N. C., who was recently taken to the Charlotte (N. C.) Sanitorium, has been very ill.

F. E. KRAMER, formerly with the Hudson Silk Co., Charlotte, N. C., is now superintendent of Morton-Davis Hosiery Mills, Dallas, Texas.

J. T. OWNSBY, formerly with the Chadwick-Hoskins Co., of Charlotte, has been made superintendent of the Red River Cotton Mill, Red River, S. C.

JAMES OATES, superintendent of the Werthan-Morgan-Hamilton Co., Nashville, Tenn., has resigned.

J. C. TIPTON, formerly of Enoree, S. C., is now superintendent of the Toxaway Plant of the Gossett Mills, Anderson, S. C.

C. V. BATTY, has resigned as boss spinner at the plant of the Fonda (N. Y.) Silk Fabric Co.

J. T. BRADY is now master mechanic at the Hannah Pickett Mill, No. 1, Rockingham, N. C.

FOSTER BEST has resigned his position as overseer for the Hudson (Mass.) Worsted Co., to accept a similar one in Rhode Island.

C. E. BRIERLEY has succeeded JOHN MCKEON as overseer of weaving of the Mohawk division of the Utica Steam & Mohawk Valley Cotton Mills.

PATRICK HANLON, overseer of finishing in a Beacon, N. Y., mill, has returned with his family to his former home in Medway, Mass., on account of the permanent closing of the mill.

J. L. HARPER, formerly of Knoxville, Tenn., is now overseer of spinning at the Oconee Spinning Co., Delano, Tenn.

L. L. HAYES, is now electrician and master mechanic at the Hart Cotton Mills, Inc., Tarboro, N. C.

FRANCIS HIPP, has resigned as cloth room overseer at the Ninety-Six (S. C.) Cotton Mills.

J. M. HORNER, of Charlotte, N. C., has been named overseer of dyeing at the Erwin (N. C.) Cotton Mills.

W. M. JAMES is now overseer of the cloth room of the Chadwick-Hoskins Mill, Plant No. 3, Charlotte, N. C.

N. A. LONG, who has been connected with the Charlotte office of the Du Pont Co., has been appointed head of the dyeing department of the Beacon Mfg. Co.

CLAUDE H. KIEFER has been appointed superintendent of Paducah (Ky.) Hosiery Mills, Inc.

E. C. LITTLE is now head of the carding department of the Chadwick-Hoskins Mill, Plant No. 3, Charlotte, N. C.

WARREN H. PEARMAN, general overseer of the twister room at the Aldora Mills, Barnesville, Ga., has resigned.

H. T. PICKENS, formerly head of the spinning and winding department, at the Ingram Mfg. Co., Nashville, Tenn., has accepted a similar position with the Pepperell Mfg. Co., Opelika, Ala.

KEARONS J. WHALEN, overseer of dyeing for S. N. & C. Russell Mfg. Co., Pittsfield, Mass., for a number of years has resigned his position with that company.

JULIUS GYLLENSVARD has accepted the position as overseer of dyeing for S. N. & C. Russell Mfg. Co., Pittsfield, Mass. Mr. Gyllensvard was formerly employed at Hinsdale, Mass.

L. A. SIMONS is now master mechanic at the Social Circle (Ga.) Cotton Mills Co.

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JAMES R. SHEPHERD, who for a number of years was foreman inspector at Salt's Textile Mfg. Co., Bridgeport, Conn., is now with Collins & Aikman Corp., Philadelphia.

WILLIAM STARLING, former carder and spinner at Fordyce Woolen Mills, Inc., East Brady, Pa., is now overseer of carding at Mayfield (Ky.) Woolen Mills.

CORNELIUS CLARK, formerly with the Reigel Textile Corp., of Ware Shoals, S. C., is now overseer of folding, packing and shipping of United Merchants Mfg. Co., at Clearwater, S. C.

Obituary

Albert M. Patterson

Albert Mansfield Patterson, an outstanding personality of the textile industry, died at his home in New York City, March 6, in his 56th year. Death was unexpected although Mr. Patterson's health had been failing since he underwent a recent operation. He is survived by his widow, the former Edith Moore Taylor, of Philadelphia, a son, A. M. Patterson, Jr., and a sister. Funeral services were held at St. James Church, New York, on Friday of last week. Interment took place in Mount Auburn Cemetery, Cambridge, Mass., where additional services were held.

Mr. Patterson was the owner of the

Albert M. Patterson

controlling stock and treasurer of the Waterloo (N. Y.) Textile Corp., and of the Southern Worsted Corp., Greenville, S. C. He was president of Patterson & Greenough, Inc., the selling organization of the two mills, and a trustee of the Union Square Savings Bank. He had been president, since its organization in 1914, of the Textile Alliance, Inc.

Born in New York City, the son of the late Albert M. Patterson and the late Eliza Percy Brown, Mr. Patterson was descended from an old Boston family. He graduated from Harvard in 1895 and immediately entered his father's business. On the death of his father in 1906, Mr. Patterson and his uncle, William Greenough, entered into control of the Waterloo Woolen Mfg. Co., which had been built up by Mr. Patterson's grandfather, and also control of Patterson & Greenough, which had been organized by Mr. Patterson's father and William Greenough.

In 1923 Mr. Patterson incorporated the Waterloo plant in Massachusetts as the Waterloo Textile Corp. and became treasurer. In the same year he incorporated the Southern Worsted Corp., Greenville, S. C., and built there a mill for the manufacture of men's wear worsteds, believing that the South offered exceptional advantages for manufacturing.

Mr. Patterson is best known throughout

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NEWS about MILLS

Cotton

Eva Jane Mill, Sylacauga, Ala., recently purchased from the Merrow Machine Co., of Hartford, Conn., one end-to-end stitching and sewing machine, to be used for experimenting in friction calender work.

United Rayon Mills, Fall River, Mass., have filed papers for incorporation to manufacture, work, prepare, treat and in all ways handle and deal in silk, rayon and other textile fabrics of all kinds and cotton, linen, silk, rayon and other threads and raw materials. The capital is $500,000 consisting of 5,000 shares of common stock, par value $100, three shares issued for cash. The officers named are: President, Homer Loring, Boston; treasurer, Myron L. McLane, New Rochelle, N. Y.; clerk, William Van D. Jewett, Fall River, Mass. Mr. Loring is president of the United Merchants & Manufacturers, the organization formed about a year ago to take over a group of cotton mills.

Utica (N. Y.) Steam & Mohawk Valley Cotton Mills recently purchased from the Whitin Machine Works Casablancas long draft spinning equipment to be applied to 33,000 spindles. They plan to continue installing this equipment for their entire plant.

Dunlop Tire & Rubber Co., Utica, N. Y., is maintaining near capacity schedules with an enlarged working force.

Klumac Cotton Mills, Salisbury, N. C., were damaged by fire of undetermined origin March 5, which occurred in the weave room. The loss was estimated at from $75,000 to $100,000.

Spray (N. C.) Cotton Mills recently purchased a 700 horse-power modern vertical shaft water wheel from Jas. Leffel & Co., Atlanta, Ga., which will be connected to a General Electric vertical shaft generator, according to announcement of Karl Bishopric, secretary and treasurer. This will enable the plant to be operated by water power, it is said. Mees & Mees, industrial engineers, Charlotte, have supervision of the installation of this system.

Lorraine Mfg. Co., Pawtucket, R. I., has shut down indefinitely. About 300 were employed.

Piedmont (S. C.) Mfg. Co. is operating its two mills on a four-day-a-week basis, according to official announcement. One of the plants operates at night and the other in daytime. Each mill shuts down on Fridays regularly for the week end.

Monarch Mills, Lockhart, S. C., have arranged to install 826 Draper print cloth looms to replace the 896 which they have at present.

Riverdale Mills, of Enoree, S. C., have recently purchased oil-spraying equipment.

*Indicates previous mention of project.

Dominion Textile Co., Ltd. is planning to take over the **Montreal (Can.) Cottons, Ltd.** Although both companies are operated under separate management, they are controlled by the same interests.

Wool

Goodall Worsted Co., at Sanford, Me., closed all departments March 6 for a week, affecting 2,000 employes.

Blackburn Worsted Co., Northboro, Mass., plant was completely destroyed by fire on March 10, with the loss estimated at between $10,000 and $15,000, partly covered by insurance. The mill, which was of wood, three stories high, had been operated day and night for some time.

Clairmont Woolen Mills, Inc., Wales, Mass., have been petitioned in bankruptcy by four Worcester, Mass., creditors, whose claims total $2,050. They allege the corporation is insolvent and that on Feb. 28 it committed an act of bankruptcy by making a general assignment for the benefit of its creditors to Nathaniel Harvey.

S. F. Scott & Sons, Inc., Uxbridge, Mass., have shut down their Elmdale Mill for an indefinite period.

Hodges Carpet Co., Inc., Indian Orchard, Mass., has announced a decision to remain in its present quarters, owned by the Indian Orchard Co.

Fulton (N. Y.) Worsted Mills of the American Woolen Co. has deeded Recreation Park to the City of Fulton, upon payment of purchase price of $25,000. The park is said to have cost the American Woolen Co. $60,000 to build.

Roy Woolen Co., Watervliet, N. Y., has increased operations and is now running on full time schedules.

Biltmore, N. C. Ernest C. May, for the last 12 years manager of the Biltmore Industries, manufacturers of handwoven homespuns for men's and women's suitings, has resigned and will establish a homespun plant at Biltmore at an early date. Some months ago Mr. May went to Scotland and purchased several hand looms and other wooden weaving equipment, which will be installed in the new plant.

Rosanna Mills, Inc., Upland, Pa., manufacturers of plushes, velours, mohairs, etc., on March 14 was taken over by Mauney-Steel Co. and Harold Feldman, receivers, who are authorized to continue the business of the corporation for a period of 90 days.

***Potter Hill Woolen Co., Inc.,** Westerly, R. I., recently acquired by John Quinn, Philadelphia, Pa., will start operations about April 1 with a working force of 200.

Sydney Worsted Co., Woonsocket, R. I., has awarded contract to the Pelletier Construction Co., Woonsocket, for a new brick mill on Allen St. Work has already been started from private plans.

Texas Wool & Mohair Co., San Angelo, Tex., has approved plans for an addition to its storage plant, totaling about 40,000 sq.ft. of space, and will begin superstructure at once.

Morehead Woolen Mills Co. Inc., Danville, Va., of which John L. Morehead, of Charlotte, N. C., is president, has been chartered "to purchase, lease, assign, mortgage, pledge, or otherwise dispose of trade-names, trade-marks, inventions, formulæ, improvements and processes, of any nature whatever." Maximum capital is placed at 2,000 shares of common stock of no par value, and $300,000 preferred.

Knit

Shelton (Conn.) Hosiery Co., has been incorporated to manufacture hosiery with an authorized capital of $50,000. The incorporators are: Joseph De Marco and Philip De Marco, both of Shelton, and W. E. Finney, Woodbridge.

***William Carter Co.,** manufacturer of knit underwear, with plants at Needham Heights and Springfield, Mass., Barnesville, Ga., and Reidsville, N. C., is planning to build a mill at Macon, Ga., for cotton knit goods. The new plant will accommodate a department now operating in a leased building on Plum St.

Propper-McCallum Hosiery Co. will soon begin work on a new power plant to house two boilers, at its West St. mill in Northampton, Mass. This mill is now shut down for a period of two weeks.

F. Kinkel & Son, Guttenberg, N. J., manufacturers of infants' fancy knit goods, have increased their plant capacity and report that their facilities are now practically twice as large as previously.

Ballston (N. Y.) Knit Glove Co., Inc., recently placed in the hands of a receiver, has resumed operations in order to finish contracts in the process of manufacture. It is expected that the mill will be able to continue operations and that the present difficulties will be adjusted.

Laughlin Mfg. Co., Cohoes, N. Y., is again in operation following plant repairs, necessitated by the recent fire.

Diana Knitting Co., Johnstown, N. Y., has increased operations by taking on additional workers.

Royal Knitting Co., Troy, N. Y., is again running on full time weekly schedules with a normal working force.

Josephine Knitting Mill, Cherryville, N. C., property has been purchased by P. T. Self. The knitting mill machinery was moved out some time ago and the building will be used for a lumber plant.

Southern Mercerizing Co., of Tryon, N. C., is putting in a large knitting plant there with a capacity of 500 dozen hose daily. Machinery is now being installed

in Soumerco plant and is expected to be completed within the next 30 days, when operations will begin. It is estimated when the plant begins operation at capacity the payroll will amount to $15,000 monthly. F. P. Bacon and W. C. Ward will operate the plant. J. B. Carpenter has been engaged as superintendent.

Knitted Elastic Co. has moved from 5100 Lancaster Ave., Philadelphia, Pa., to 10 West Harvey St., Germantown, Pa., where greater floor space is being occupied. The company plans to increase its equipment.

Logan Hosiery Co., Philadelphia, Pa., manufacturer of full-fashioned hosiery, having an equipment of approximately 23 full-fashioned machines, has been acquired by **United States Silk Knitting, Mills, Inc.** According to Harry West, head of the latter concern, the Logan plant will be operated as a separate unit. United States Silk Knitting Mills, Inc., are now operating three full-fashioned plants, one at South Langhorne, Pa., another at 21st & Lippincott Sts. and the recently-acquired plant of Robinson Hosiery Co., at 16th & Indiana Ave. The purchase of the Logan Hosiery Co., gives them their fourth full-fashioned plant in Philadelphia and vicinity.

J. W. Landenberger & Co., Philadelphia, Pa., operating the Randolph Mills, Randolph and Columbia Aves., have had plans drawn for a new brick and concrete mill, totaling 60,000 sq.ft. floor space, on tract of land recently acquired on N St., near Kensington Ave. Julian S. Simsohn, Inc., Broad St. and Girard Ave., is architect.

Pearl Hosiery Mills, Inc., Reading, Pa., which ceased operation last year, were dissolved by court order, on application of the stockholders.

Hartford Knitting Mills, Nashville, Tenn., are planning replacement of damage at mill caused by fire on Mar. 4. An official estimate of loss has not been announced.

Grey Hosiery Mills, Inc., of Bristol, Va., with maximum capital 4,000 shares of common stock without par value, and $100,000 preferred, has been granted a charter by the State Corporation Commission to manufacture, buy, sell and deal in hosiery and knit goods. James P. Grey, of Bristol, is president. W. H. Rouse, of Bristol, is attorney for the mills.

Bell Hosiery Corp., Suffolk, Va., with maximum capital of $200,000, has been granted a charter by the State Corporation Commission to manufacture textiles and wearing apparel. J. R. Saunders, of Suffolk, is president.

Allen Bros., Co., Ltd., Hanover (Ont.) Can., manufacturer of silk hosiery has moved its head office from Toronto to Hanover. Show rooms have been opened in the Wellington Bldg., 137-143 Wellington St. W., near the Union Station, Toronto.

Silk

Tirrell Bros. Silk Corp., Milford, N. J., is continuing on a curtailed production schedule, operative for several months past, and expects to hold to this basis for a number of weeks to come.

*Indicates previous mention of project.

H. Bornstein & Sons, Inc., Paterson, N. J., are advancing production at their silk mill, and have added a number of workers to the force.

Bath Silk Co., Emaus, Pa., which for a number of years was operated by J. H. Frederick, has been taken over by Warren Schmoyer, of Macungie, Pa., and is nearly ready to start operations.

Pine Tree Silk Mills Co., Philadelphia, Pa., manufacturer of ribbons and broad silks, having an equipment of approximately 250 broad looms, is liquidating and at present is selling all machinery.

Martinsville (Va.) Silk Corp. will at once inaugurate a full night schedule, adding about 50 workers to the force, due to demands for the products of the plant. When the night shift is installed the mill will run 24 hours daily, according to W. S. B. Mobrey, manager.

***Foremost Fabric Corp.,** Lebanon, Pa., now has 175 people employed at the new plant. Additional machinery is being shipped from the New Bedford (Mass.) Silk Mills.

Rayon

New Bedford (Mass.) Rayon Co. is operating 36 of 40 machines in its plant in the former Manomet Mill and expects to be operating to full capacity before the end of the year.

***Skenandoa Rayon Corp.,** Utica, N. Y., plans to enlarge its force from now on until eventually 1,200 hands will be employed. Among recent improvements is conversion of a boiler house into a caustic soda preparation department and the changing of an abandoned engine room into a department for housing ice machines and air compressors.

American Enka Corp., Enka, N. C., reports that 2,020 people are now employed at the plant. Plans are for gradually increasing the number during the spring, as rayon production increases, according to C. Vanderhoover, secretary.

Tubize Artificial Silk Co. of America, Hopewell, Va., has placed orders for 61 coning machines from the Foster Machine Co., Westfield, Mass., and the Universal Winding Co., of Boston, Mass.

Miscellaneous

Raybestos-Manhattan Co., Bridgeport, Conn., has acquired a controlling interest in the Wright & Corson Co., Milford, Conn., manufacturer of rivet and rivet-setting machines, etc., and will operate as a subsidiary organization. It is proposed to continue the present plant at Milford.

Young Bros. Mattress Co., Providence, R. I., has purchased the mill building of Providence Silk Hosiery Co., which discontinued operations two years ago, and will move from 233 Charles St.

Bowman Twines, Ltd., Brantford (Ont.) Can., is the name of a new company organized for the purpose of taking over the **Huron Cordage Co.,** located on Alice St., and which passed into bankruptcy late in 1929. Hon. Beniah Bowman, of Toronto, is reported to be the principal shareholder in the new concern which has a capitalization of $50,000.

Useful Catalogs

Link-Belt. Link-Belt Co., 515 North Holmes Ave., Indianapolis, Ind. Booklet No. 1257. Construction and application of roller chain drives.

Motor Control. Cutler-Hammer, Inc., 207 12th St., Milwaukee, Wis. Booklet. Selection of motor control for various loads and motors.

Nickel Alloy Steel. International Nickel Co., Inc., 67 Wall St., New York. Booklet. Buyer's guide, listing manufacturers of nickel alloy steel products.

Humidification. American Moistening Co., 260 West Exchange St., Providence, R. I. Tour No. 8, by James W. Cox, Jr. Humidification problems in spooling, carding, winding, doubling, and twisting.

Insulation. General Insulating & Mfg. Co., Alexandria, Ind. Bulletin Nos. 400 and 401. Industrial applications of rock wool and rock-wool cork insulation.

Textile Machinery. Dronsfield Bros., Ltd., Oldham, England. Catalog. Illustrating card-grinding machines, roller-covering machine, and sundry accessory appliances.

Alkali. Diamond Alkali Co., Pittsburgh, Pa. Booklet. Data on uses and properties of caustic soda, soda ash, and other alkalis.

Warping. Universal Winding Co., Boston, Mass. Booklet. Illustrating high-speed warping installation at the Pepperell Mfg. Co.

Drives. Allis-Chalmers Mfg. Co., Milwaukee, Wis. Bulletin No. 1228-K. Applications of texrope drives in textile manufacturing and other industries.

Couplings. Morse Chain Co., Ithaca, N. Y. Bulletin No. 37. Industrial applications of flexible couplings.

Lighting. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Catalog 219-B. Describes and illustrates equipment for commercial lighting.

Recording Instruments. The Bristol Co., Waterbury, Conn. Catalog. Recording pressure and vacuum gages, and charts for use therewith.

Glassine Papers. Westfield River Paper Co., Inc., Russell, Mass. Booklet. Packaging and printing with glassine papers.

Stoker. Combustion Engineering Corp., 200 Madison Ave., New York. Catalog MR-2. Construction and installations of multiple-retort underfeed stokers.

Welded Piping Designs. Linde Air Products Co., New York. Booklet. Fabrication of welded piping designs including procedure control, templet layout for pipe fittings, and tables for estimating costs.

Steel Castings. Lebanon Steel Foundry, Lebanon, Pa. Leaflet. Description of new annealing furnace.

Corkboard. Armstrong Cork & Installation Co., Lancaster, Pa. Leaflet. Uses of corkboard in insulating roofs.

Steam. Combustion Engineering Corp. Pamphlet. Advantages of high pressure steam.

Fire Extinguishers. American-La France & Foamite Corp., Elmira, N. Y. Booklet. Correct protection against fires.

Questions and Answers

We undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to TEXTILE WORLD.

Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. We do not undertake routine analysis of woven or knitted fabric construction, or investigation involving unusual expense.

All inquiries must be accompanied by the name of the person inquiring, not for publication, but as evidence of good faith. The identity of those seeking information on technical subjects will not be disclosed.

Letters expressing opinions or voicing criticism will be signed by the correspondent's name unless the letter itself contains a request that the name be withheld.—EDITOR.

Wool Shrinkage, and Comparison of Crossbred and Carpet Wools

Technical Editor:

What is the range in the shrinkage of wool due to occasional influences? How much will the world's leading clips shrink in a "good" year and in a "dry" year?

What would you regard as the maximum of carpet wool and the minimum count of coarse crossbred wool? To what extent can carpet wool be used for clothing purposes and to what extent is it so used under given price situations? Likewise under given price conditions, how much crossbred wool (given in terms of total production of crossbred wool—or, better, terms of the proportion of crossbred wool used in carpet manufacture) is used in the manufacture of non-clothing materials, and what is the highest quality count of crossbred wool that can be and is used for this purpose? (7078)

Regarding the computation of the world's wool productions, one authority says, "Many difficulties attend the estimation of the total amount of the world's supply. Some of the statistics—and notoriously those relating to live sheep—cannot be relied upon for accuracy. The task of distinguishing between greasy and scoured wool offers continued opportunities for error, and the ever-varying condition of the clips of every country in successive years makes the task a delicate and severe one."

Dalgety & Co., Ltd., in their "Annual Review and Statistics, Season 1927-1928," state that "wool is always to a very marked extent an infallible barometer of the climatic conditions existing during the period of its growth. A generous season naturally broadens the fiber and leads to an excess of yolk, and the dry year gives a 'hunger fineness' to the wool and reduces the quantity of yolk in the wool."

In the "Bulletin of the National Association of Wool Manufacturers, Annual Wool Review, 1928," will be found many statistical tables giving information relative to wool production in the United States.

On page 140 they give a table on "Weight and Shrinkage."

For a series of years the estimated average weight and shrinkage for the whole country have been as in Table I.

TABLE I—WEIGHT AND SHRINKAGE

Year	Fleece Average Weight in Lb.	Average Shrinkage in Per Cent	Year	Fleece Average Weight in Lb.	Average Shrinkage in Per Cent
1928	7 80	60 0	1921	7 10	59 0
1927	7 74	59 0	1920	7 22	58 7
1926	7 80	60 0	1919	7 39	60 4
1925	7 60	60 0	1918	7 11	60 8
1924	7.40	59.0	1917	6.95	59.2
1923	7.30	59.0	1916	6.86	59.1
1922	7.10	59.0	1915	6.80	58.5

This is followed by a table giving the scoured wool product, fleece and pulled, for the same years. We quote this table (Table II) because it should agree, generally, with the statement that wool yield and shrinkage decrease in lean, dry years. At the same time, however, it is necessary to know the estimated number of sheep for the same years; then some deduction can be made.

TABLE II—SCOURED WOOL, FLEECE AND PULLED

Year	Total Number of Sheep and Lambs	Product in Pounds	Decrease in Pounds	Increase in Pounds	Average Shrinkage in Per Cent
1928	44,554,000	*156,970,000	.....	7,601,000	60.0
1927	41,846,000	*149,369,000	.....	8,471,000	59.0
1926	39,864,000	*140,898,000	.....	5,863,000	60.0
1925	39,390,000	*135,035,000	.....	6,918,000	60.0
1924	38,300,000	*128,117,000	.....	6,465,000	59.0
1923	37,223,000	121,652,000	.....	2,423,050	59.0
1922	36,327,000	*119,228,950	6,782,050	.....	59.0
1921	37,452,000	*126,021,000	11,294,165	.....	59.0
1920	39,025,000	*137,315,165	1,622,319	.....	58.7
1919	48,866,000	138,937,484	.....	8,326,194	60.4
1918	48,603,000	130,611,290	.....	1,180,235	60.8
1917	47,616,000	129,431,055	1,324,695	.....	59.2
1916	48,625,000	130,755,750	1,232,210	.....	59.1
1915	†51,430,000	131,987,960	.....	147,280	58.5

†1911–1915 average. *Revised figures.

The decrease listed for 1917 is listed in the original table as an increase, which does not agree with the difference of the products for 1916 and 1917. The average shrinkage figures are added to the table so that comparisons may be made. If a lower shrinkage denotes a lean, dry year—assuming that average quality does not vary—then the production of clean wool per sheep in such years should indicate the effect of a dry season on the yield.

Applying this reasoning to the years when the shrinkage averages were at maximum and minimum, we have the figures shown in Table III.

TABLE III—COMPARISON OF 1918 AND 1915

Year	Total Sheep	Product, Clean Wool	Average Shrinkage
1918	48,603,000	130,611,290	60.8
1915	51,430,000	131,987,960	58.5

Year	Pounds Clean Wool Per Sheep, Average	Production Comparison Per Cent	Shrinkage Comparison Per Cent
1918	2.8430	100	100
1915	2.5660	90.256	96.21
Loss in yield	0.2770	9.744	.....

From the results obtained, it would appear that 1915 was a dry year and 1918 was a favorable year for pasturing sheep. The weather bureau could easily decide whether this deduction is right. If correct, a dry year would cause a decrease, in the production of clean wool, of 9.744%, which would be accompanied by a decrease in shrinkage equal to 3.79%.

The Australian wool clip was seriously affected by a drouth in 1923-1924, we believe, and the yields around that period are very interesting:

Year	Production, Bales
1921-22	2,041,136
1922-23	1,918,002
1923-24	*1,779,888*
1924-25	2,094,880

Equal to 8.72% reduction in the clip.

This is evidence; it agrees with the previous deduction

and shows that the wool clip in some localities would even decrease more than the average for the whole Commonwealth.

Perhaps 26s counts would represent a fair maximum for carpet wools, although we know of an instance where a good lot of Scotch Blackface, 28s-32s quality, was spun to 30s count and gave an excellent spin and a good yarn.

Carpet wools have been used for hosiery, knit goods, homespun tweeds, coarse woolen cheviots, overcoatings, cap cloth, and probably blended with other wools for special purposes. A carpet wool, cap spun, flyer twisted, and then genapped (singed in a gas flame), produces a yarn suitable for many purposes. Hosiery made from such yarns was actually worn in the trenches during the World War and compared favorably with hosiery made from ¼-blood yarns. Perhaps the United States Customs could supply interesting information regarding the pounds of carpet wools used in fabrics other than carpets, for such wools were liable to a duty when not used for carpet manufacture.

There is no limit regarding the quality count of cross-bred wool that can be used in the manufacture of non-clothing materials, providing there is a profit in it and the wool gives the desired effect.

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Shrink-Proofing Jersey Cloth

Technical Editor:

We have been asked by our trade for a shrink-proof worsted jersey cloth, using French-spun yarns. Is such a thing possible? If so, will you let us know how this can be accomplished? *(7089)*

There are several methods for shrinking jersey cloth which are in more or less common use. The London-shrunk finish, the blowing method, the steaming process, and the wetting-out method are in common use. After wetting out fabrics, they should be dried on a loop or apron dryer without tension.

It is probable that the method you refer to is the chlorinating treatment used in producing the full-shrunk or shrink-proof fabrics. In applying this method the goods are preferably treated in a reel machine. Either an acid solution of sodium hypochlorite, or alternate treatments with regular alkaline sodium hypochlorite and hydrochloric acid, are used. The latter method is conducted as follows: The cloth is treated for 15 min. in a 1½° Tw. solution of sodium hypochlorite. It is then drained, immersed without washing for 15 min. in a weak bath of hydrochloric acid, and then washed. This treatment gives a yellow color to undyed wool, which is removed by treating for a few minutes in a solution of 50 lb. of sodium bisulfite to 500 gal. of water. The fabric is then rinsed (a small amount of oil softener being added to the last rinse water), extracted, and dryed in a loop or apron dryer.

◆

Figuring Weavers' Wages for Cord Tire Fabric

Technical Editor:

Can you give me a practical formula for obtaining the production of cord tire fabrics from the picks per inch on the pick counter? We are running 23/5/3 cord, 1,516 ends, four picks per inch and 130 picks per minute. The filling is 23/1. If possible, I would like to figure this from our pick counters, which register one for each 100 picks. Any information you can give me as to the usual way of obtaining these details will be appreciated. *(7109)*

THOUSANDS of inquiries are handled annually by the Technical Editors. In order that as many readers as possible may benefit from this service, we select problems of general interest for publication each week.

It should not be a difficult matter to make up a formula for figuring the amount to be paid a weaver for any fabric by the hundred or thousand picks as shown on the clock. In the weaving of the ordinary cloths, in which the picks per inch are comparatively high, it is customary to figure by the one thousand picks; but in the weaving of cord fabrics, where one hundred picks approximate almost one yard of cloth, it is customary to figure by the hundred picks.

You state that the looms are running at the rate of 130 picks per minute, but do not state what is the wage base or the estimated percentage of production. A wage base is necessary when figuring the amount by the clock, yard, or pound. An estimate as to the percentage of product a weaver can turn off in a working week is very necessary. This estimate of production is often governed by experiments carried on with a weaver of average skill.

The wage base is first considered. Then from experiments carried on in order to get a fair estimate of production (this estimate should be taken from an average of no less than two or three months' operation), the percentage of production becomes a settled factor in the figuring of the weaver's wages. Of course this estimate is changeable—some weavers may produce more than the amount agreed upon; others may produce less. On the average, however, the estimate will be considered as a possible percentage that the average weaver can produce. When the wage base and the percentage of production are agreed upon, it is an easy matter to figure the amount to pay the weaver per 100 picks. The following is a formula for figuring by the clock method:

Assume one loom per weaver; loom speed, 130 picks per minute; estimated percentage of production, 70%; and the wage base, $28 per week, with a working week of 48 hours. Then:

$$130 \times 60 \times 48 \times .70 =$$

2620.80 hundreds of picks per working week of 48 hours.

Dividing 2620.80 hundreds of picks into $28, the answer is 0.01068, or $0.01068 per 100 picks.

To figure how to pay the weaver by the yards woven, proceed as follows:

$$\frac{130 \times 60 \times 48 \times .70}{36 \text{ in. per yd.} \times 4 \text{ picks per in.}} = 1{,}820 \text{ yd. per loom per week.}$$

The wage base, $28, divided by 1,820 yd. per loom gives $0.015379 to pay the weaver for weaving one yard.

An easier method is to make a constant for the production as follows: The working hours per week are changeable only by law. The minutes per hour are a

standard, as are also the inches in one yard. Make a constant of these three factors as follows:

$$\frac{60 \times 48}{36} = 80$$

Then:

$$\frac{130 \times 80 \times .70}{4 \text{ picks per in.}} = 1{,}820 \text{ yd. per loom per week}$$

Just as long as the working week remains at 48 hours, this constant (80) times the speed of the loom, times the percentage of production, divided by the picks per inch, will give the yards per loom per week.

To prove that this is correct, figure by proportion how much should be paid for weaving one yard (144 picks), as compared to what is paid for weaving 100 picks. Then

$$\frac{144 \times .0107}{100} = \$0.015379$$

We have figured on a basis of one loom per weaver. If a weaver should be given two or more looms to operate on the same wage base, the base should be divided by the number of looms operated by a weaver and the quotient used as a base. That is to say, if the base is $28, and the weaver operates two looms, divide 28 by 2 and the answer is 14, which becomes the wage base to use when the weaver operates two looms.

Figuring weavers' wages by the clock is the only absolutely correct method, and is being adopted by all up-to-date mills in this country. Figuring by the yard is never really correct, for the picks per yard will vary, sometimes in favor of the mill and at other times in favor of the weaver.

Figuring by the pound method should not be tolerated by either mill or weaver, for the weaver will have to be paid by the weight of the roll, which sometimes weighs as much as 325 lb., and no two rolls will weigh the same.

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Elimination of Center Filling Loops

Technical Editor:

In the Jan. 18 issue of your valuable periodical there was a good article on "How Loomfixer Can Eliminate Center Filling Loops," by H. E. Wenrich. After reading this and studying it very closely, I am convinced that the writer has given the center stop motion a great deal of thought and that his conclusions are the result of long experience.

In checking up on the advice given in preparation to adopting this new setting, I find that I must also know the proper length of the dagger H, Fig. 1, page 40. There is a difference of opinion as to the correct length of this part of the mechanism. Some experts claim that the dagger should touch the frog, as in Fig. 3, when the loom is on bottom center. Others say that it should do this when the loom has just passed bottom center. Therefore, I would like to ask Mr. Wenrich this question: What should be the proper length of this important part of the filling stop motion?

Now, while we are on this subject, I wonder if the writer has had much experience on this kind of a center stop motion on automatic looms; and if so, could he help me to overcome the trouble of the loom stopping on the first pick after the change of a bobbin. I would appreciate any information he can give me to surmount this annoying fault.

This letter was submitted to Mr. Wenrich, who replies as follows:

"I sincerely believe that by following the advice given in the article published in TEXTILE WORLD, issue of Jan. 18, you will secure better results than by timing this vital part of the loom by any other method. However, there really is an important piece of information which was omitted in this article, as you mentioned; namely, the length of the dagger. There are two things that must be taken into consideration when the length of the dagger is chosen. These are broken picks and loom stoppages. If you are troubled a great deal by broken picks, the dagger should be shorter. If you are troubled with loom stopping, the dagger should be longer.

"You mention the fact that some experts claim the dagger should touch the frog when the loom is on bottom center, while others claim it should touch when it is past bottom center. Many years of fixing have convinced me that the latter method is entirely wrong. The loom should never be past bottom center when the dagger touches the frog. I believe that, due to the loom stopping off at times while the loom has been running and shuttles threaded, providing you have no trouble with broken picks, the proper length of the daggers should be such that they touch before bottom center.

"I would recommend the following method for you to try, which I believe will be of great help: Place loom in position of bottom (dead) center. Pull brake back so frog will be in position ready to knock off. Place in dagger so it will extend over the tip of the frog exactly $\frac{1}{4}$ in. Dagger will now be $\frac{1}{4}$ in. longer. Now pull lay back so dagger will fit into frog, and time the lift accordingly. The feeler wires should be down in the bottom of the well at least $\frac{1}{2}$ in. before the dagger hits the frog, in order that the dagger will be in position with plenty of time to be ready to hit properly. On fast-running looms this is of utmost importance. This set can be readily accomplished by lift rod and feeler adjustment rod.

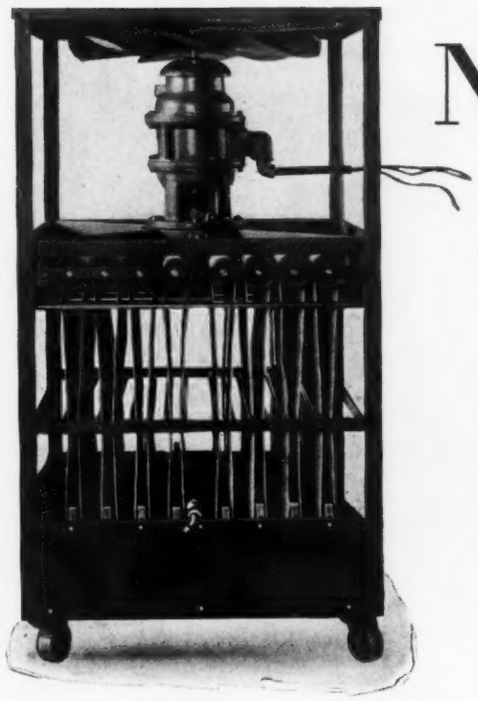
"I have had some experience on this type of motion on automatic looms, but only for a short time however. Stopping of the loom on the first pick across for the full bobbin is usually due to the fact that the filling is held away from the edge of the cloth generally on the first pick. This carries the pick back from under the feeler wires and allows the feeler wires to drop into the well and the dagger to strike the frog, knocking off the loom. The pick should be close to the woven thread as the shuttle travels across the race plate; otherwise we have this trouble to a certain extent. With the dagger slightly longer, it will overcome this defect somewhat.

"Providing you are still troubled with the loom stopping on the first pick as mentioned, notice carefully if the end of the thread is carried back with the lay. If so, this is very hard to overcome in case the longer dagger will not help you out.

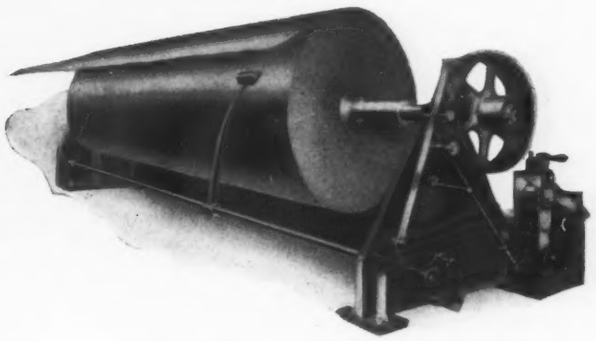
"One other change which will give some relief, is, of course, the use of longer feeler wires. Try longer feeler wires by cutting the well close to the reed and also cutting the bottom reed bed out so the wires will set properly at this point. Have the wires as long as possible coming nearly to the reed, just far enough away so they will not touch. The wood part towards the reed can be entirely cut away on the race plate without impairing the weaving. Try this on one loom and I would appreciate knowing the results.

"Not knowing the speed of the looms, I would surmise the speed is about 120 picks per minute. With above suggestions, I see no reason why you should not be able to overcome this trouble on this speed."

New Machinery and Processes



Open View of Atmospheric Normalizer



Reel Drive and Tension Control Device Applied to Roll of Textile Material

Atmospheric Normalizer

FOR supplying evaporated moisture to the atmosphere a machine has been placed on the market recently by the Manufacturers' Machine Co., North Andover, Mass. This device, the Sjöström Atmospheric Normalizer, is applicable to the manufacture, processing, and storage of woolens, worsteds, cottons, silks, rayons, paper, leather, and similar materials, where it is important that certain conditions of humidity be maintained. It is stated that in many cases the use of the apparatus not only benefits the manufacturing operations, but increases the tangible value of the products by insuring their proper hygrometric condition.

The machine consists of a chamber about 30 in. square and 54 in. high. The top of the chamber is provided with a brass wire screen; immediately below this screen is a 24-in. fan operated by a ¾-hp. vertical motor; below the fan is a series of wicks which are caused to revolve around brass rolls kept in motion by the fan motor. The lower part of these wicks runs through a water tank and they are consequently always kept wet. On starting the motor the air of the room is drawn into the normalizer through two openings in its lower part and after passing over the series of wet wicks is discharged in a vertical direction.

In passing across the wet wicks the air absorbs evaporated moisture in proportion to its relative humidity—that is, the dryer the air the more moisture it absorbs; as the air increases in moisture content evaporation is automatically diminished so there is consequently no possibility of saturation and no danger of liquid moisture being deposited on articles in the room. Ordinarily air near the ceiling is warmer than air near the floor. By creating an air current from the floor to the ceiling the normalizer is said to assure a uniform temperature and humidity throughout its sphere of operation.

The amount of air passing through the apparatus is about 5,000 cu.ft. per min. and the evaporating surface exposed to this air amounts to about 165 sq.ft. A normalizer of this type is designed to furnish the necessary humidity to 50,000 to 100,000 cu.ft. of space. The action is automatic; the water supply being governed by a self-acting shut-off and if required the operation of the motor by wet-bulb thermostatic control. The equipment is self-contained and requires no expensive piping or auxiliary parts. The device weighs approximately 500 lb. and is mounted on casters so that it may be easily moved. It is constructed of steel, iron, brass and copper; all gearing is cut; and it is designed to give an ample factor of safety against wear.

Reel Drive and Tension Control

A DEVICE for automatically maintaining uniform tension on reels, spoolers, and other mechanisms used in reeling or unreeling materials has been announced by the Bethlehem Steel Co., Bethlehem, Pa. It appears that this reel drive and tension control should find considerable application in the textile industry where it is desired to maintain a uniform tension on materials, regardless of the changing diameter of the rolls, as they are wound upon or unwound from reels, beams, or shells. The apparatus is said to be automatic in operation, requiring no attention at any time during process of winding or unwinding.

The reel is a development from the Bethlehem torque amplifier and is designed to maintain accurate frictional resistance regardless of the changing coefficient of friction. In operation the brake drum is coupled to the core or mandrel of the reel, and the braking or drag is accomplished through the band system which encircles the pulley. Resting lightly on the material is a roller, mounted on a follower arm which is so pivoted that the roller travels radially toward the center of the roll as the diameter decreases. (In the winder type this roller starts, of course, on the empty core and travels outward as the material builds up.) The shaft on which the follower arm is pivoted actuates one end of the brake-band

system. The other end of the band system terminates in a linkage which governs the tension of the large spring. When a full roll of material is placed on the mandrel of the reel the roller rests on the outermost layer of the material, and the braking effect of the bands is then at its maximum; but as the material is unwound and the roller travels toward the center the braking effect becomes less, always in exact proportion to the distance of the roller from the center. If the roller were brought exactly to the center, the braking effect would be zero. Since the tension placed on the material depends on the braking effect, it is apparent that if the tension was 100 lb. when the reel was full, it remains at 100 lb. all the way in to the core. If it is desired to place the material under a tension of 150 lb. or 50 lb., this is accomplished by moving the handle (shown at the upper end of the large tension-governing spring) to the left or to the right, and at whatever point the handle is set the tension for that setting will be the same from the periphery of the roll to the core. The setting can be changed while the reel is in motion. If the tension is never to be altered, the change mechanism can be screwed permanently tight.

This device is not a speed control, but adapts itself to the speed of the other machinery to which it is connected. In the winder type, variation in the speed of drive has no effect on the reel action.

When setting a new roll on the mandrel or removing an old one, the follower arm is pulled down or moved aside and thus causes no interference. Where materials of different gages require different tensions, the slide carrying the tension-change mechanism can be calibrated so that a certain gage takes a certain setting, but at whatever tension the device is set, that tension will be maintained uniformly from periphery to core (within a few per cent) until it is purposely changed. If changing atmospheric conditions which affect the material so require, the operator can readily alter the tension without slowing down the apparatus. Upkeep of the device consists of occasional lubrication and relining of the friction bands, which need be done only after long periods of service.

Textolite Fittings for Looms

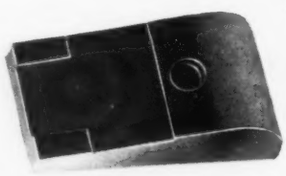
THE Textolite picker for drop-box looms, manufactured by the General Electric Co. and distributed by the E. H. Jacobs Mfg. Co., Danielson, Conn., has recently been redesigned to further increase its life, preserve the points of the shuttles, and reduce wear on the picker sticks. Besides the improved picker, two other Textolite fittings for looms have been recently introduced to the trade. These are a parallel plug and a treadle roll. Textolite, the material of which these fittings are composed, consists of layers of cotton fabric treated with a synthetic resin and molded under heat and pressure.

In the improved picker a cushion of rubberized fabric is inserted at each end of the stick hole to absorb the shock of the picker-stick blow. These cushions are so fused into the body of the picker that they become practically an integral part of it. The rubberized fabric is tough and resilient, and reduces wear on the picker stick.

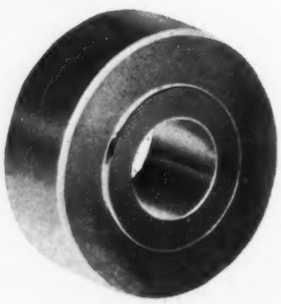
At the point of shuttle contact is molded a shock absorber of specially treated fabric. This resists penetration of the shuttle points, but is sufficiently soft and yielding to preserve these points.

The same advantages of the original model are claimed for the new; viz., uniform quality due to the controlled conditions under which the picker is manufactured; elimination of necessity for seasoning or oiling before installation; resistance to atmospheric conditions, oil, moisture, age, or vermin; absence of rivets; low power requirements, due to low coefficient of friction; and long life, because of resistance to wear.

Improved Textolite Picker



Textolite Parallel Plug



Textolite Treadle Roll

The Textolite parallel plug is claimed to insure parallel operation of the picker stick at all times, due to its resistance to wear. These plugs have long life and are easily installed. They are claimed not to deform or mush out and not to change shape due to atmospheric conditions.

An important advantage of the Textolite treadle roll is its aid to fire prevention. Being non-meallic, it is soft enough to prevent dangerous friction and will not cause sparks to be dropped into the treadle, which is jammed with greasy lint. Besides eliminating this fire hazard, the roll prevents excessive wear on the cam.

Isopropyl Ether

ISOPROPYL ether, a commercial product of interest to the textile industry, has been placed on the market recently by the Carbide & Carbon Chemical Corp., 30 East 42nd St., New York. Isopropyl ether is somewhat similar to ethyl ether in its properties and may be directly substituted for it in many applications. Its boiling point is higher than that of ethyl ether or acetone and its vapor pressure lower, which is a decided advantage in extraction processes. The low solubility of isopropyl ether in water permits its use economically in processes requiring solvent recovery. Its solvent powers are excellent, dissolving fats, greases, oils, tars, and most of the common gums and resins. As a result, the manufacturers state

that its most interesting application for the present should be as a textile spotting fluid.

Dyes are generally insoluble in the pure ether, but due to the presence of isopropanol in the commercial grade, it is a partial solvent for the spirit-soluble and oil-soluble dyes. The cellulose ethers and esters, with the exception of ethyl cellulose, are insoluble in pure isopropyl ether. In the presence of alcohols the ether becomes a solvent for nitrocellulose and may be used as a solvent in certain lacquer compositions.

Small Hydro-Extractor

THE American Laundry Machinery Co., Cincinnati, Ohio, has just announced another addition to its line of textile extractors. This new 17-in. Monex extractor has a basket of all Monel-metal construction. The curb or case is also constructed of Monel metal, which not only gives the machine a pleasing appearance,

Small Hydro-Extractor of Monel Metal Construction

but is also an assurance that it will not be subject to the ravages of rust.

For the dyer of fine-gauge silk or rayon hosiery the extractor is said to be especially interesting because of its "silk finished" basket, which eliminates any possibility of injuring the hosiery during the extracting operation. According to the manufacturers the entire inside surface of the basket is "hand honed" or "silk finished," each basket being tested before leaving the factory by inspectors who use fine-gauge silk stockings to test it.

The extractor is constructed as standard only in motor drive, complete with motor and control, with all features of safety that are usually found in the large-production extractors. An automatic safety cover prevents starting of the motor while the cover is in the open position. A unique feature of the extractor is its substantial spindle-bearing mechanism, which needs filling with oil but once each year.

Corrections on Conditioner Article

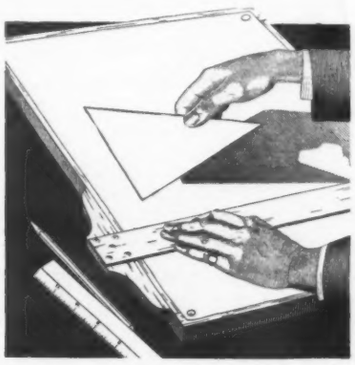
TWO unfortunate typographical errors occurred in the description, published in these columns last week, of the unit air conditioner introduced recently by Parks-Cramer Co., Fitchburg, Mass. It was stated that this unit, known as type NCH, handles 15 cu.ft. of air per min. This was obviously in error. The air handling capacity of the unit is 1500 cu.ft. per min. It was stated further that the power consumption of the unit is 200 watts whereas the correct figure is 290 watts. The editors greatly regret these erroneous statements.

Solving Power-Factor Problems

THE General Electric Co. announces a new system of solving power-factor problems by scale. This is a graphic method involving simple computations only. Heretofore the calculations relating to power factor and its improvement have been difficult for those most vitally interested and at best did not visualize the conditions that might result from different treatments. In brief, the new system consists of laying down to scale the known factors and then scaling the unknowns. Thus the effects and probable costs of improving power factor by unity-power-factor synchronous motors, by capacitors, or by synchronous condensers may be scanned and compared. Increased load-carrying capacity is readily measured and rearrangements suggest themselves.

All that is needed for computation is a scale, a pencil, and paper. A right-angle triangle with the sides in proportion 3 to 4 to 5, together with a small T-square, save time in the calculations and make the work more accurate.

In the actual calculations, horsepower at unity-power-factor is expressed in terms of inches measured horizontally. Lagging-power factor is represented by lines slanting upward to the right, and leading-power factor, by lines slanting downward to the right. Where it is



Solving Power-Factor Problems by Scale

desired to improve lagging-power factor, and to determine the amount of leading-power factor necessary to accomplish this result, a triangle is laid out using the horizontal unity power-factor line and the upward lagging-power-factor line. Then by applying the 3-4-5-triangle the necessary corrective value may be established. Other problems are solved in a similar manner.

Full directions for solving power-factor problems, together with illustrations, are given in the publication *GET*-191, issued by the General Electric Co.

Patents on Butterworth Kier

THE Butterworth continuous kier, described in last week's issue of TEXTILE WORLD, is covered by U. S. Patent 1,741,338, and also by foreign patents. Other U. S. patents are also pending.

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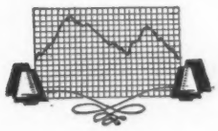

Raw Silk Prices May Decline No Further

Irregularity and Weakness of Market Will Continue, Nevertheless, Dr. Haney Forecasts

SUMMARY

Statistics are pointed toward a stronger position, but have not yet made sufficient improvement to warrant a favorable forecast. Continued irregularity and further weakness in April and May are indicated.

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The analysis and forecast by Dr. Lewis H. Haney, Director, New York University, Business Research Bureau, which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.

AN IMPORTANT question just now is, "Did the February break in the silk market fully discount the worst?" Of course, it is impossible to answer such a question with certainty. It can reasonably be said, however, that an affirmative answer is possible. Silk is now so cheap that recent low levels must be effective in stimulating consumption and possibly in discouraging production. Though stocks are large, they show a strong downward trend. Above all, there are indications that Japan is now thoroughly aroused and prepared to take active measures to support the market. The very fact that trade sentiment is so generally pessimistic concerning silk values may indicate that the worst has been seen.

We doubt if much further decline in silk prices appears. One can hardly face the facts as to the present stocks of silk, however, and the mediocre outlook for the textile trade, without concluding that a period of dull and irregular markets lies ahead and that rallies will be short-lived. It continues probable that some renewed weakness will be seen in May and possibly before the end of April.

We note a tendency to figure the probable consumption of Japanese silk for the balance of the season as likely to be the same as last year. It seems certain, however, that a considerable decline in consumption will be shown. The competition of rayon, on the one hand, and worsted fabrics, on the other, will be greater than last year. Chinese and Italian silk are stronger competitors. Over-production of hosiery is an important factor, and the generally unfavorable position of business must be considered.

Again, there is no indication that European requirements for Japanese silk will be as large as a year ago, as there has been a downward trend in shipments of Japanese silk to Europe.

For these reasons, it seems that the estimates that the carryover will be as low as last year are unfounded, and that there is certain to be a considerably larger carryover.

Bull Points

About all that can be said for the silk market at present is that:

1. The Japanese government is reported to be about to indemnify reelers on the basis of some relatively high figure (such as 1,250 yen) and this would tend to strengthen the market.
2. The total visible supply of Japanese silk declined in February by about 20,000 bales.
3. New York storage and the quantity in transit have been quite sharply reduced, thus increasing the strength of the statistical position in this country.
4. A little improvement is reported in the broad-silk business and in the demand for thrown silk.

Bear Points

On the other hand, there are many unfavorable conditions:

1. The Japanese into-sight movement is increasing, while exports lag, with the result that Japanese stocks are piling up.
2. A considerable increase in the carryover of Japanese silk at the end of the season is probable.
3. The increased use of Chinese and Italian silks continues; February deliveries of Japanese silk were only about equal to those of a year ago.
4. A sharp decline in the activity of narrow looms.
5. Manufacturers continue to limit their activities, refusing to expand buying on a rally; profit margins are very low.
6. Business is slack, both in silk goods and in hosiery.
7. Hosiery manufacturers have been forced to clean up inventories, and unsatisfactory conditions in this branch will reduce consumption materially.
8. Rayon prices seem to have no bottom. Fine high-grade rayons are increasingly used by broad-silk and ribbon manufacturers.
9. There is some probability of increased competition from worsted fabrics.
10. Trading in silk turned dull on the advance last week, and the unsettled markets tend to restrict buying.

Recent low prices may discount the statistical position, but a glance of the foregoing points certainly does not justify any early sustained strength in silk prices.

Statistical Position

The statistics of the Silk Association of America for February show some improvement, but the position is still weak. The improvement appears in reduced stocks, well sustained deliveries, and a fairly low percentage of imports to deliveries. The weakness centers in the fact that stocks are still abnormally large.

Outstanding was the good-sized de-

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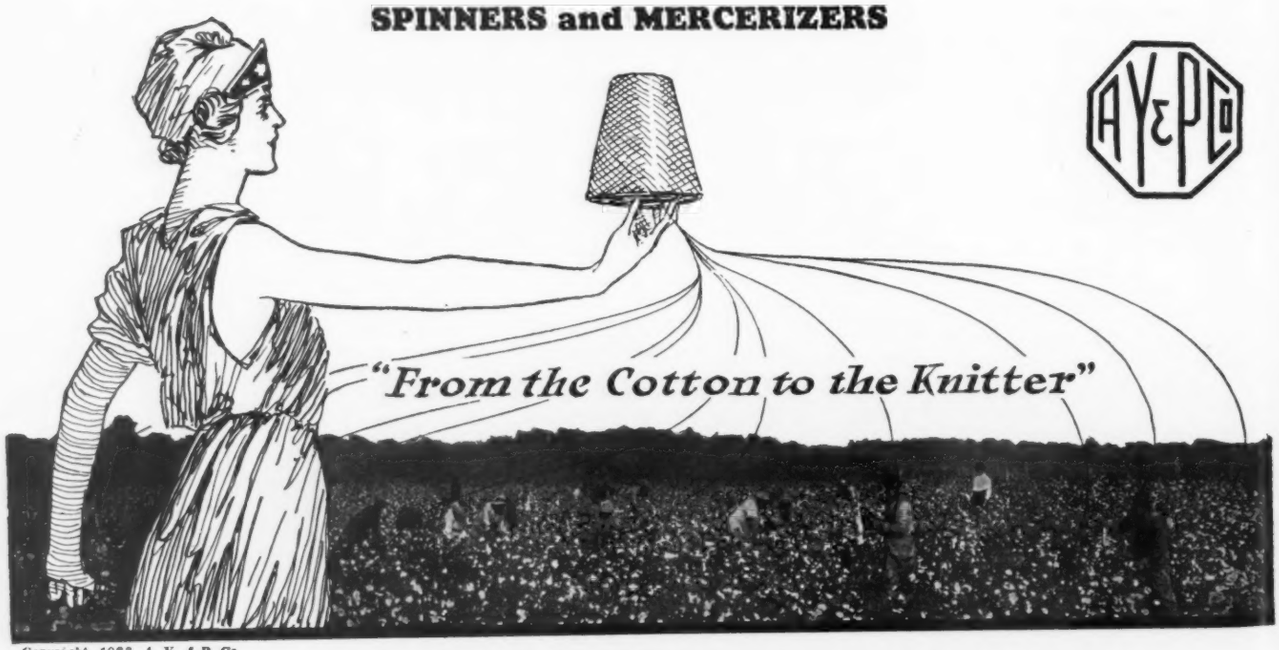
SPINNERS and MERCERIZERS



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cline in storage, amounting to 7,600 bales. This was due to moderate imports while deliveries were quite good for the season. At over 68,000 bales, however, the stocks were 46% above a year ago and nearly 38% above current deliveries. They are still large.

Imports, however, declined a little, and were the lowest for the month since 1927. They were only about 85% of deliveries. Moreover, the sharp cut in the quantity in transit indicates less pressure and a further decline in domestic stocks. The figure was 13,000 bales lower than in January and 6,000 bales below a year ago.

Deliveries are estimated to have been the largest in any recent February, except 1928. At 49,852 bales, they totaled a little above a year ago. Japanese deliveries, on an average daily basis, however, were almost exactly the same as in February, 1929.

While the domestic position thus seems on the way to correction, improvement here is partly at the expense of the Japanese position which is marked by a large increase in stocks. This is due to increased receipts from the filatures and smaller shipments for export.

The total visible supply, however, reflects the decline in the in-transit and New York figures, and at a little over 140,000 bales shows a decline of 20,000 bales for the month.

Considering the usual seasonal movements, the decline in total stocks is not as yet very impressive. In the last three months, the combined New York and Yokohama stocks have averaged 120,000 bales, which is 71% above the 1922-1926 average, even after eliminating the merely seasonal changes. This compares with a level of silk machinery activity which is barely 3% above the average. Thus there is still an enormous accumulation which is record-breaking, both taken alone and in comparison with domestic requirements. It amply explains the February decline, and fails to give any hope of early sustained improvement in prices.

Price Trend

Cracks XX in February averaged $4.69, against $4.74 in January and $5.18 a year ago. The February average was not so low as the average for last December, but at the end of the month the price was $4.50, and the recent low point appears to be the lowest since 1915.

We note that the volume of trading in silk on all speculative markets tended to increase on the decline, and that futures fell more sharply than spots.

Weakness in silk prices during February is an unfavorable indication,—not since 1926 has the February average fallen below that for January, and then the price continued downward through May.

We now know that the January recovery accompanied an increase in sales of silk goods and in silk spindle activity

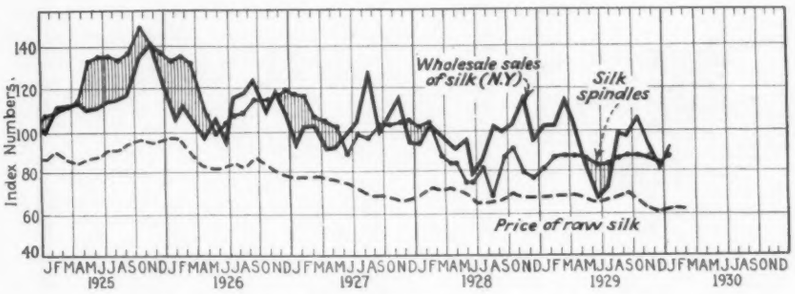

Fig. 1. SILK TRADE BAROMETER—Price of Raw Silk—Average of high and low Thursday prices of Crack Double Ex. (Journal of Commerce). Spindles—Per cent of available machine hours operated (Silk Association of America). Wholesale sales of silk (N. Y.) adjusted for seasonal variation (N. Y. Federal Reserve Bank). Average 1922-1925 = 100 for all indexes.

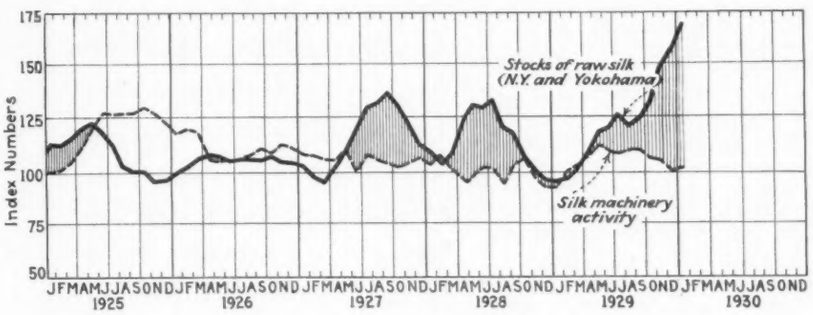

Fig 2. RAW SILK STOCKS AND MACHINERY ACTIVITY. Stocks—N. Y. and Yokohama, adjusted for seasonal variation, three-month moving average; N. Y. Stocks, Silk Association; Yokohama Stocks, H. L. Gwalter & Co. Machinery Activity—Composite of spindles and looms adjusted for seasonal variation, Silk Association. Average 1923-1927 = 100 for both indexes.

(though the latter was only about seasonal in proportion). We do not yet know the figures for February, but, judged by trade reports and low thrown silk prices, it seems likely that one or both of the foregoing items declined. The level of wholesale sales of silks seems too close to the spindle output for comfort. Also the January gain in yardage sold so far exceeds that in dollar sales as to indicate much price cutting. We see no indication of such a broad increase in spindle activity as usually accompanies rising prices.

On the other hand, in the absence of any statistical information showing declines in sales or spindle activity, and with a not very unfavorable position shown by the January figures, there is little basis for anticipating much further decline in prices.

We must, however, note one unfavorable indication in the shape of unusually sharp drop in narrow loom activity in January, which came after a continuous decline since last May. A similar movement appeared in 1923-1924, and in 1926-1927, both of which appear to have been cyclical in character and were attended by declining silk prices.

The Textile Trend

Cotton Textile Markets — Piece goods buying improved somewhat, although still far from satisfactory. Goods quotations have discounted low cotton price, and sellers hope for improvement before long. Cotton was moving upward at mid-week, but did not cause increased activity in the goods end. Print-cloth prices showed declines from the previous week, although steady business was reported on some lines.

Wool Textile Markets

As an aftermath of sharply reduced prices on fall suitings, buyers have been thrown into somewhat of a turmoil. Present quotations reflect the lower prices of raw wool, but buyers fear that the bottom has not been reached. There was a movement toward stability with the announcement that one house was guaranteering prices for the balance of the season. If other houses take the same action, as seems probable, buying may pick up more rapidly.

Knit Goods Markets

Slight improvement in women's full-fashioned hosiery; fair demand and some mills sold at list prices. Medium

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and lightweight underwear sold moderately; heavyweight quiet. Bathing-suit call easier, but mills were well ahead on contracts; heavyweight sweaters moved slowly.

Silk Textile Markets

Raw silk stronger, thanks to confirmation of announcement Japanese Government will back plan to warehouse surplus stocks; prices up to 10c. Thrown silk also firmer and prices inclined upward. Spun silk very firm, with steady demand from broadsilk mills. Broadsilk weavers reported active spot buying of spring and summer fabrics, especially affecting chiffons, shantungs and velvet suitings.

American Woolen Annual Report

Called Favorable Despite Large Loss Experienced for 1929

THE feature of the week in textile circles was the annual report of the American Woolen Co. released Saturday, March 8. The annual meeting will be held Tuesday, March 25. While on the face a net loss during 1929 of $4,228,190, seems, and indeed is, something to arrest attention, a comparison of the actual situation as compared with other years discloses indications of a fundamental betterment on the basis of huge markdown in inventory and greatly increased liquid assets that together promise well for the future of the corporation. The cash position at the close of 1929 had more than doubled over that of 1928 and was approximately eight times the current liabilities. Current liabilities outstanding Dec. 31, 1928, $6,796,554, had been reduced to $1,283,285 as of Dec. 31, 1929. The inventory had been reduced $17,493,982 from $46,148,309 at the close of 1928 to $28,654,327 or 38% by the end of 1929.

Stocks of the American Woolen discounted some weeks ahead the appearance of the annual report. The preferred stock, quite active, rose from 19¾ to 44⅞ and the common from 7½ to 20¼. Both stocks experienced a gradual but sharp recession and on the appearance of the statement the preferred dropped to 34¾, recovering to 38.

The decline in the inventory indicates a decline in value of materials held to a much larger degree than any actual lightening of loads of raw, semi- and fully-manufactured materials. This fact seems to have been lost sight of by the various commentators on the report. What stocks of wool, tops, noils, yarns, etc. were held by the American at the two periods are known only by a few of the American officials, not even by the Department of Commerce, the American being one of the few concerns refusing information regarding wool stocks and wool consumption.

It seems, therefore, a rather unguarded assumption that the decrease in inventory means that the company is carrying greatly less poundage of materials than a year ago and the statement that the American Woolen Co. "has cut its swollen inventory in half" seems without sufficient justification in fact. The American Woolen has no doubt cut down its raw and semi-manufactured stocks to sensible proportions. This indeed has been the tendency in manufacturers' stockholdings for the last eight years. Quarterly stocks of wool and semi-manufactures average generally without much change in poundage around the low level seen since 1922. A decrease of 38% in value does not therefore indicate that the stocks of materials held are 38% smaller than they were a year ago.

Considering what the company has been through in the last few years, the balance sheet as of the end of 1929 makes a remarkably favorable showing. Current assets on Dec. 31 last amounted to $59,739,337, while current liabilities were only $1,283,285, leaving a balance of net quick assets of $58,456,052. Of the current assets $10,808,208 was cash. The company has ahead of its preferred stock only about $12,000,000 in bonds and notes, which means that the $50,000,000 preferred issue is covered by current assets to the amount of over $90 a share. This computation takes no account of the company's plants.

American Woolen Income Account

The American Woolen Co. reports for the year ended Dec. 31, 1929, a deficit of $2,293,989 before depreciation. After allowance of $1,934,201 for such charges a net deduction from surplus of $4,288,190 is shown. This compares with profit before depreciation in 1928 of $694,334 and a loss after depreciation of $1,263,263. Surplus account as of Dec. 31, last stood at $9,684,971 as compared with $13,913,162 a year previous.

Income account for the year ended Dec. 31, 1929, compares as follows:

	1929	1928
Net loss	$2,293,989	†$694,334
Divisions preferred stock	.....	.....
Subdivisions	.....	.....
Depreciation	1,934,201	1,956,597
Deficit for year	4,228,190	1,262,263
Previous surplus	13,913,161	15,175,425
Total surplus	9,684,971	13,913,162
	1927	**1926**
Net loss	†$2,598,077	$2,103,153
Divisions preferred stock	1,020,833	3,500,000
Subdivisions	875	1,750
Depreciation	1,997,965	2,122,692
Deficit for year	421,596	7,727,595
Previous surplus	15,597,021	23,324,616
Total surplus	15,175,425	15,597,201

†Profit.

Knight Net Loss $262,317

For the year ended Dec. 28, 1929, B. B. & R. Knight Corp., operating a number of cotton mills in Rhode Island, reports net loss of $262,317 after depreciation of $205,387, compared with net loss in 1928 of $214,120, and a net profit in 1927 of $194,833. The 1929 loss did not take into account a profit of $66,052 by Knight Finance Corp. Including loss of $139,847 on disposal of plant assets, $801,774 payment in settlement of suit by Kelsey Wilton Textile Corp., and small surplus adjustment, there was a net reduction of $1,133,231 in surplus and capital stock account, or from $7,979,680 to $6,846,449.

President G. Edward Buxton reported in part to stockholders: "Your directors have approved the policy of discontinuing operation and liquidating such properties as have reflected large losses for a period of years, due to destructive competition from southern low-cost mills operating under very substantially lower wage scales. In accordance with this policy, the stock in process in the Centreville Mill has been run out and the machinery sold.

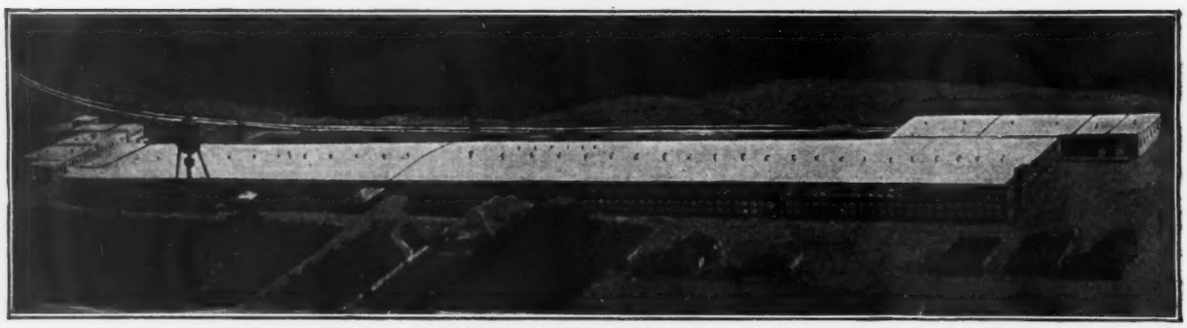
"Our active mills for 1930 will consist of Royal, Arctic, and Grant Mills, totaling about 150,000 spindles and capable of producing about 30,000,000 yd. per year. Our Pontiac finishing plant has been consistently improved in equipment and facilities for diversified work. It is capable of finishing about 60,000,000 yd. of cotton, or cotton and rayon fabrics, of which about one-half can be printed."

Kendall Earnings Smaller

The Kendall Co., cotton goods, operating a number of plants in the North and South, reports for the year ended Dec. 28, 1929, net profit after taxes, interest and depreciation, of $664,776, equal after preferred dividends to 90c. a share on 386,551 no par common shares, as compared with $1.71 per share on 370,185 common shares in 1928 and $1.65 a share in 1927. Current assets on Dec. 31, 1929 were $8,745,629, and current liabilities, $3,144,280, leaving net working capital of $5,601,349.

President Henry P. Kendall, in his report to stockholders, said in part: "The past year has been spent in reorganizing new properties acquired. Net earnings have been affected by necessary reorganizations, although volume not only was maintained but was substantially increased until the last three months of the year when the normal year end seasonal decline was accentuated sharply by the stock market reactions."

The Fabrics Finishing Corp., operating finishing plants in New Jersey,



Spinning Mill, Lincolnton, N. C.

Announcement!

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BOGER & CRAWFORD

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PHILADELPHIA, PA.

reports a net loss, after depreciation, interest and other charges, of $180,951 for the fiscal year ended Dec. 31, 1929, as compared with net income in 1928 of $410,385 after all charges.

Merrimack Earnings Smaller

The Merrimack Mfg. Co., cotton goods, Lowell, Mass., and Huntsville, Ala., reports for year ended Dec. 31, 1929, net profit, after all charges but addition to special inventory reserve, of $507,885, equal after preferred dividends to $15.47 per share on 27,500 shares of common. This compares with profit on similar basis of $1,307,581 in 1928, equal after preferred dividends to $44.55 per share on the common, and with a 1927 profit of $1,111,368, equal after preferred dividends to $37.41 per share of common. Contrary to its practice of the two previous years the company did not make heavy charges out of 1929 earnings as additions to inventory and contingency reserves. It added but $67,839 to contingency reserve. Out of 1928 earnings the company added $258,343 to inventory reserve and $541,818 to contingency reserve.

Boston Stock Auctions

The following sales of textile shares were made at Wednesday's auctions:

Shrs	Mill	Par	Price	Change
10	Nashua, pfd.	100	79½	+ ½
3	Naumkeag	100	90	....
6	Indian Orchard	100	28½	—16½
53	Otis	100	43	+ 4½
10	Fall River Bleachery, com.	100	75	....
6	Amoskeag, pfd. (old stock)	100	68½	— 1½
37	Sampson Cordage	100	100	....
100	Associated Textile	...	36½-35	....
25	Dartmouth, com.	100	62	....
259	York	100	5½	— 1½
15	Farr Alpaca	100	85½	— 4½
9	Gluck	100	73	— 2
10	Edwards	100	80½	+ ½
543	Total			

Textiles on N. Y. Exchanges

The following shows the movements of the leading textile stocks listed on the New York Stock Exchange and Curb for the week ended March 12.

	High	Low	Last Sale	Net Change
Adams Mills	23½	23½	23½	—1½
American Woolen	16¾	13¾	14½	—2½
American Woolen, pfd.	40¼	34½	37	—3½
Belding-Hemingway	6	5½	5½	+ ⅛
*Blumenthal	36	36	36	—3
Botany Mills, A	4	4	4	....
Cannon Mills	31½	31½	31½	— ½
Collins & Aikman	30	28½	28½	—1½
Consolidated Textile	1½	1½	1½	....
*Courtaulds, Ltd.	10⅞	10⅞	10⅞	— ⅛
Durham Hosiery, pfd.	57½	54	54	—3
Gotham Hosiery	28¾	26½	26½	+1
Kayser, Julius	38	36½	37	— ½
Kendall, pfd.	88	86	86	—2
Mallinson	9½	8½	8½	— ½
*Mock-Judson	26	24	24½	+ ½
Mohawk Carpet	32¾	30	30½	— ¾
Munsingwear	50	49	49	—2
Pacific Mills	31	27½	28	— ½
*Pepperell Mfg.	100	100	100	—5
*Powdrell & Alexander	53½	53½	53½	—2
Real Silk Hosiery	62¾	57	61½	+3¾
*Tubize	139½	128½	128½	—9½
United Piece Dye Wks.	32¾	28½	31	+2¾
Van Raalte	19	18½	18½	....

*Listed on Curb.

Little Change in South

Common and preferred shares of southern cotton mills showed little change for the week ending March 8.

Lack of Cotton Yarn Interest

Falling Prices Scare Many Buyers From Market

Philadelphia.

THE last week in February and the first two in March have been the least active three weeks spinners and dealers have experienced this year. Few reported even fair trading for January and February, and when trading drops below that level, conditions in cotton yarns are highly unsatisfactory from every standpoint. As was the case in the stock market crash last fall, lower prices, instead of creating friends for cotton and yarns, are having the opposite effect, buyers and consumers of both becoming less willing to make new commitments, as prices decline.

Manufacturers are not interested in purchasing, and sales this week in weaving and knitting, carded and combed have averaged smaller individually than any previously reported. Manufacturers are unable to make new yarn commitments, and in many instances are delaying specifications on their old contracts in view of the lack of confidence in goods centers. Until the raw material displays a more stable trend, there is little basis upon which to forecast a change in this condition.

Spinners Above Selling Prices

In the face of such an unfavorable situation, spinners are maintaining prices at least as firmly as the raw-material market warrants. Yet there is a fair amount of short-selling, which is forcing actual selling-prices down at a more rapid rate than spinners are lowering their prices. For example, there are persistent reports that 20s-2 warps of ordinary quality are selling at 28 to 29c., in the face of the fact spinners are quoting this count at 30c. as their low limit.

The same condition is found in 30s-2 warps. Spinners as a rule quote average quality at 35c. but manufacturers claim they are not paying more than 34c., and refuse to consider higher prices except where plush or higher-grade yarn is wanted. There have been several medium-sized inquiries for plush yarns, but actual sales have been unimportant. Spinners assert that specifications on old contracts have been developing at a slightly more active rate than during previous weeks. One house reports that they find a fair inquiry from manufacturers of plushes that are going into car seats.

Sales of both carded and combed knitting yarns have fallen off to a marked degree, especially in view of the active interest shown in these qualities during January and most of February, when the underwear trade purchased large amounts for their light-weight lines to be delivered during the next four months. Not only has new business fallen off, but spinners report that specifications on old contracts are arriving at a less active rate. Manufacturers who purchased during the first two months of this year have a paper loss of approximately two cents a pound on their extra-carded quality underwear counts.

Mercerized Yarns Unchanged

Mercerizers are finding new business difficult to locate, and are also finding that manufacturers in most lines are holding back specifications on old contracts. This condition in processed yarns is having a decided effect upon combed yarns, and combed spinners report a poor demand with little new business placed so far this month. Combed yarns are quoted slightly lower in conformance with a similar trend in the futures market, but are holding noticeably more firmly than carded qualities. Mercerized yarns are unchanged in prices so far as the larger processers are concerned.

●

New York—In sympathy with the decline in raw cotton, prices for cotton yarns softened, the reduction averaging about ½c. per lb. for carded and 1c. per lb. for combed. There are rumors that even lower prices are in circulation, but it is difficult to trace specific examples of very low prices and it is probable that the amount of yarn involved is not actually as large as the whispers would indicate. With the market rather unsteady shadows are magnified.

The volume of yarn being sold has declined since the last slump in cotton and there has been further tendency to wait until cotton steadies for a time. If cotton holds the gains which were made the first of the week new life may be injected into the yarn business, but it is not likely that any large buying movement will develop for a time. Factors believe that there is considerable yarn to be bought, but agree that purchasers are in no immediate need and can sit back and wait.

March is not expected to be a large month for cotton yarn, and the general view is that it will continue the pace established during the latter part of February. April, however, is looked forward to with more optimism. The situation is similar to the forecasts for general business, which anticipate a quiet March, but hope for better times in April. Whether or not such prognostications will prove correct is another matter. It is rather generally agreed that industry as a whole, as well as

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textiles should have a fairly good fall season, but there is a lack of real confidence in any of the spring forecasts. The cheering effect of spring weather is an uncertain basis.

The poor price situation has rather clouded the fact that so far there has been a respectable volume of yarn sold in 1930. There is a lull at present which many believe will continue for a week or two.

●

CHARLOTTE, N. C.—Erratic behavior of cotton futures, from which continued uneasiness in the market has developed, further retarded activity in both carded and combed yarns in the Charlotte-Gastonia center during the week. Majority of carded sales yarn mills were reported to be operating only four days a week, while from reliable information it was estimated that combed sales yarn spindles of the Gaston County area were producing slightly more than 70% of normal capacity.

Despite the acknowledged fact that many combed yarn spinners are anxious for business, prices quoted by spinners were said to be firm and at about the same level which they have maintained for several weeks. Carded yarn quotations were slightly weaker and very little business was reported, although some dealers had observed more interest on the part of certain important buyers.

Carded qualities were quoted on the basis of 29 to 30c. for 20s-2 and 35½c. for 30s-2.

●

BOSTON. — The continuous drop in cotton, reaching a new low level, has brought active yarn business to a minimum, buyers showing the greatest hesitation in purchasing anything beyond small supplies to meet their immediate requirements. Inquiry for yarns has been exceedingly spotty, covering the entire range from coarse to fine, with the coarse and medium numbers of chief interest. Prices quoted by spinners do not meet views of buyers, and considerable negotiation is necessary before any business is booked. Most of the prices at which spinners will accept business seem unlikely to yield profit even on recent low cotton prices.

Some spinners have sufficient orders to carry them along for a couple of months, others are running to stock. There is said to be a considerable accumulation of coarse counts. The situation in general is more unsettled than at anytime this year, and curtailment of spinning activity seems in order.

The market is semi-demoralized under the combined influence of keen competition, splitting of commissions, general over-production, and a cotton position which at time of writing seems as unstable as it did a week ago. Spinners are doing their best to stand up against the combined attack, yet are meeting but small success. Knitting yarns are slow, with quotations nominal, while carded yarns are quoted over a wide range of price. Weaving yarns cover the bulk of current inquiry. Thread yarns are sluggish. Carpet manufacturers are showing interest in low prices now available, and may place some business in the near future.

Little Interest In Worsted Yarn

Single Counts For Bathing Suits Lead

PHILADELPHIA.

FOR the first time this month, there was a slight improvement in weaving counts, in that men's wear manufacturers placed business which, though not large in volume, was larger than in previous weeks. Outerwear counts moved at their previous rate, which represents barely fair trading for these counts, bathing-suit yarns being the most active of the list with single numbers moving the most readily.

The men's wear goods market is unsettled, and this is reflected in quotations spinners are naming for mixtures. There is no fixed market level as yet for the new season yarns, and it is generally agreed there will not be for several days at least. Lower values in the raw material section have upset previous price ideas of both spinners and weavers, and a start must be made from the ground up to rebuild confidence at the lower levels.

MIXTURE PRICES UNCERTAIN

A number of leading French spinners are quoting $1.82½ for 2-30s, 64s mixtures, and are holding firm at this level in the belief that there is nothing to be gained by price-cutting at this time. Others are reported to be offering this count and quality at lower levels, but this rumor is not confirmed by actual sales reported. It is possible this snipping at mixture prices will result later in the season in slightly lower prices, but the limited amount of business placed for the new season lines has not been of sufficient volume to lower the nominal asking-price of this count.

Local manufacturers of fancy men's wear either have shown their new lines or are doing so this week; several of them have made a new practice of showing the different patterns but are refusing to publish prices at which these goods are being quoted.

There is more stability to the outerwear section of the yarn market and little change in quotations during recent weeks, although there are rumors that certain spinners are offering 2-20s, 50s at less than $1.22½. This is confirmed by at least one large factor, who asserts that he has not quoted this count and quality lower than $1.20. The higher-priced spinners state that the lower-priced yarn is also lower in grade, and not worth $1.22½. It is a fact that many knitting yarn spinners are holding firm at the $1.22½ level or $1.40 dyed. It is also true that manufacturers have bought at two and half cents less, presumably the same grade.

SINGLE KNITTING YARNS ACTIVE

Single bathing suit yarns are being taken actively, and leading spinners of these qualities are quoting on the basis of $1.30 for 15s, 48s. There is little two-ply yarn going into bathing-suits in the Philadelphia section this year. Demand for 2-40s, 64s, zephyr yarn is less active than it has been, but this count and 2-50s are moving in fair quantity, being the two most active counts at present, aside from single bathing-suit numbers. In two-ply yarns there is an improved demand from manufacturers of infant's wear.

◆Thrown Silk Prices up 10c.

THE strengthening of the raw silk situation had the usual favorable effect upon thrown yarn. Throwsters found broadsilk manufacturers more interested than they had been, and a fair amount of business was placed, mostly small lots for spot shipment. Demand for thrown silk was still far below normal, and throwsters do not look for any sudden rise.

The tone of the market was firmer, however, and an improved situation was expected. Prices strengthened, both on weaving and knitting yarns, making a rise of about 10c. Weavers are believed to be low on crepe and organzine yarns, and will be obliged to cover soon.

A new color card giving 30 new throwster fugitive tints, has been announced by the United States Testing Co. Each color is shown on white raw silk in two concentrations, namely, eight ounces per 100 lb., and two ounces per 100, and on three thread 13-15 crepe, yellow raw and viscose type rayon in two ounces per 100 lb.

◆Spun Silk Yarn Sales Well Ahead

SPUN silk continued firm and indications were that the sales for the first quarter would be well ahead of the same period last year. Spinners consider the situation particularly satisfactory, in

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view of the hesitancy prevailing not only in the other divisions of the silk trade, but throughout industry as a whole. The market is firm; books show a healthy turnover, and orders continue coming in actively. The demand is lighter than in January and February, some spinners report, but there is no real lull at any end. Manufacturers placed good-sized contracts during the week, both spot and future. One representative firm was sold to mid-April on certain sizes. Generally speaking, however, buyers have no difficulty in getting spot shipment of yarns.

Tub silk fabrics (Lavelle) sold freely, and encouraged weavers to steady buying of first grade 62 singles yarn, which is used for this cloth. Spinners said their customers reported a firm outlook for the entire Lavelle line. These fabrics are going into wash dresses; hitherto tub silk for wash dresses has been mainly a summer proposition, but now manufacturers are making these fabrics with dark grounds, aiming to build an all-year demand. Spun yarns for the manufacture of charmeuse also moved steadily, and represented a considerable part of the week's business. Spinners further reported a call for yarns for the manufacture of certain lightweight stations.

The news last week that Paris-designed evening gowns made of shantung were being shown in New York excited much interest among spun silk factors, and there was speculation as to whether this may mean the entry of shantung into the formal wear field, on a good scale. At present, the sport dress is shantung's strongest field, but the new development has stirred the spinners to look about with the possibility of creating a real demand for the yarn for formal fabrics.

Cautious on Rayon Output

Some Firms Cut Schedules 10 to 15%, is Report

CURTAILMENT of production was a topic of considerable discussion in the rayon yarn industry, this week. There has been no drastic slump in demand, but orders are less than was expected for the first quarter, and several leading producers have pared their output schedules with the aim of avoiding surplus; it was estimated that the curtailment in some cases was 10 to 15%. Some producers increased the number of machines producing finer sizes, which resulted in a lower total poundage. In one instance the reduction of output was publicly announced. Curtailment apparently is not general; executives of two important firms stated that demand was steady enough to move their stocks.

"Sales are at least as good as last year," was the comment of one spokesman, and another, while admitting that demand was lighter, felt confident that the firm's production was not too big. However, even if these optimistic assertions were to be accepted at face value, they could not be regarded as representing the general situation. Demand has unquestionably slackened. Underwear knitters, for one, have curtailed output of rayon garments, and they have slowed up their yarn consumption in proportion. Hosiery producers, also, are following a policy of caution as regards output. The only sign of real strength manifest this week was at the weavers' end. Rayon flat crepes continue firm, and other rayon fabrics enjoy a less pronounced but steady demand.

Standardization Needed

The growing need for fixed standards in rayon yarn specifications is illustrated in the widely divergent claims made regarding "multifilament" yarn. Certain producers took issue with some of these claims this week, and the discussion on this point veered back to the fundamental question of just what is multifilament? The rayon industry as yet has accepted no official specifications on any sizes or types of yarn, and the factors who expressed themselves on this issue agreed that early action looking to the fixing of standards is needed.

◆Noils Moving a Little More Freely

Boston.

THERE is nothing especially new in the noil market, although these commodities are beginning to move more freely into consumption, and one large American woolen mill, not many miles out of Boston, is running more than full time on certain broadcloth fabrics for women's wear which are said to require a considerable percentage of noils in their construction. Fine noils of average grade continue to be quoted at 55c., with a good fine colored noil at 40. The crossbred wool noils are sluggish. There is some little movement in silk and rayon noils. Camelhair noils are moving steadily into consumption.

A good-sized consignment of 126 bales of wool noils arrived during the week from Germany. The Continental market has generally reached a good low level for American purchasing, and, were stocks not so large in Boston, larger buying abroad would be seen. Opinion is less optimistic about the outlook for noils in Belgium and France. American demand is no longer a factor of any importance, and business from the United States is restricted. In the Bradford market the demand for fine noils is said to be much quieter, although one or two export houses have been doing a fair business in the 64s quality at around 40c. a lb. delivered to Italian hat-felt makers.

Wool Rag Position Surprising

Probability of Higher Duty Has No Effect in Checking Down Trend

Boston.

MOST of the reworked-wool plants are running on short time schedule, but have been cheered recently by inquiries coming in from the mills. Everything depends upon the course of the New York goods market. Revisions downward have been made in a number of fabrics, and it looks as though even a slight development of confidence in the situation would lead to the appearance of substantial fabric buying. The showing of overcoating fabrics is also not unlikely to assist the substitute market.

Prices on standard reworked materials are holding firm. Producers of substitutes see no sense in cutting prices when the demand is so thin, and yet are probably ready to make concessions in line with the lower woolen-rag market whenever firm offers of business are presented.

Outlook More Promising

Industry is encouraged somewhat over information filtering in that some of the woolen mills in Massachusetts are in receipt of larger business, and that this may be the beginning of a decided turn for the better in woolens, with subsequent larger purchasing of rags, clips, and reworked wools. Some of the mills which use rags and reworks are operating largely on lightweight goods, rush orders for the Easter season. Later there will be a switch in manufacturing to heavyweights for next fall, and a larger consumption of recovered materials is likely to occur. There is a feeling that the woolen branch of manufacturing will continue to demand low prices on reworked materials as well as on old rags and clips, although it is not plain how this will be accomplished, with the moral certainty of a higher tariff on woolen rags some time in the late spring or early summer. The rag market therefore is the football of opposing forces, a higher tariff suggesting advances, while limited and bearish mill demand presses for lower values.

The trend in old rags continues downward. Light hoods, one of the most volatile of stocks, is down to an abnormally low point, for no very apparent

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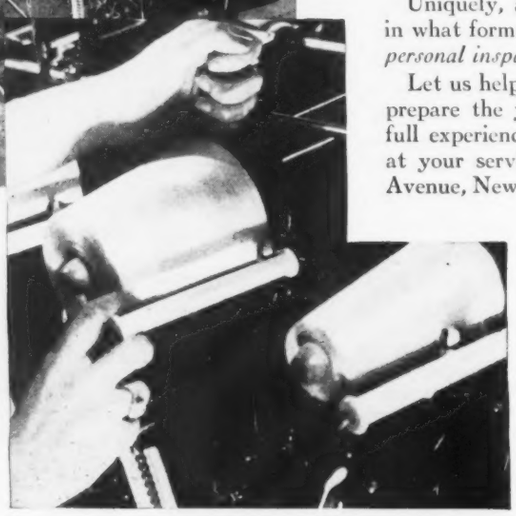
Every step of the process is a marvel of precision, carefully checked by trained workers.



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reason. It would not take much demand for this particular rag to move up quite rapidly. Merino stocks can be sold only at concessions, and not even then in large quantities. Some graders are inclined to believe that it would be a better proposition for them to buy graded rags from among the offerings made by those who must liquidate, rather than to buy mixed rags even as low as 7c. and grade out the various materials.

Domestic Rags Continue Weak

The woolen rag market in the United States is semi-chaotic as to price, and numerous distress sales are being made at such low levels as to be almost unbelievable. Any line of quotations on woolen rags must be considered nominal at this time. In spite of the poor situation, the keener-sighted merchants and traders see very clearly that good rags are a good buy at this time, and that most of the desirable grades, if purchased at the current low levels, will show a very respectable enhancement in value before many months have passed. Mixed softs are not any lower, and it is an open question as to whether they will move down to 6c., the figure predicted in some quarters of late. Any certainty of a higher tariff would bring about an immediate rise in the price of most rags. Meanwhile holders of foreign rags are sitting tight in the belief that they have good property that will become better before long.

While it is not possible to purchase good packing of mixed rags in this section under 7½c., it is reported that these materials could be obtained as low as 6½c. in the New York market. The situation seems now to have reached its minimum point in both prices and consumer demand, and a turn for the better may be seen any time.

Foreign Rags Held for Rise

It must not be supposed that the imports that have occurred during the past two months have been going into consumption. A large quantity of material is held either in bond or in the warehouses of the importers. Much of the buying was speculative, based upon favorable prices for good rags in the foreign markets and the probability that the import duty would be substantially diminished. The foreign knit stocks are maintained at firm prices by the owners or consignees who refuse to meet any low market bid for what they consider choice material. Several times during the past six or eight months importers have been disappointed by the failure of Congress to enact a new tariff, and even now it is not certain that the tariff on which the Senate has been working for months will ever be passed.

The Dewsbury market has a very quiet tone. All business is being done on a hand-to-mouth basis, and there is very little confidence anywhere. Exports to the United States in knit stocks are near a standstill. Few inquiries have been received recently regarding the usual grades of best white knits, Shetlands, silver blue, and other colored knits. White knits have again declined in price, and some houses would take 120 shillings per cwt. in order to move their stocks. The slump in London wool values made it increasingly difficult for rag graders to do any satisfactory business. The several English rag auctions passed off unsatisfactorily, sellers finding it impossible to dispose of anything except the best soft rags.

U. S. Rag Exports

Imports into England from the United States are restricted. There is practically no demand for American ripped graded worsteds and cloth. American business with the English market in low-grade, cheap rags has been falling off very substantially month by month. Total British import of American rags for January was 731 cwt. as compared with 1626 cwt. in January, 1929, and 1,413 cwt. in January 1928. The largest amount of rags arriving in the English market in January was 8869 cwt. from France.

◆See Early Call For Rayon Waste

RAYON waste outlook was somewhat improved this week, but the improvement was more promise than performance. Demand continued light, and prices were weak, the chief point of encouragement being that inquiries had begun to come in.

Waste dealers said garnetters showed more interest and expected to be in the market for yarn soon. At present, orders are few and far between. Some small contracts for bleached and unbleached waste were placed, but dealers said the trade was not buying.

The slow demand has accumulated considerable domestic waste in the New York market, but this is not viewed as a serious factor. Dealers remarked that any normal spring call would soon bring about a stronger market.

◆Duty on Egyptian Will Not Lift Waste

Boston

THE cotton waste market notes with interest, though not with approval, that the Senate has taken foreign cotton of 1⅛ inch staple and above off the free list, and placed it at the end of the cotton schedule with a duty of 7c a pound attached. This action is supposed to be in the interest of the domestic growers of the longer-staple cottons in the United States. Off-hand it might be said that, if it is right to protect the native wool grower from competing grades of foreign wool, there is equal justification for protecting the American cotton grower from competing grades of Egyptian cotton. It is questionable, however, whether our domestic cotton growers could meet the situation to the satisfaction of thread manufacturers and other producers of fine yarns. If the tariff should be adopted on this basis, it is likely to have no effect whatsoever on the comber and strips from Sak. and Egyptian cotton, the price of these wastes being determined not by the cost of the foreign cotton, which is always relatively high, but by the ruling value of similar domestic wastes.

Market Less Active

The cotton-waste market has lost some of the activity noticeable in the early part of last week. The fairly good demand for strips has largely faded away; prices are a trifle easier, with the quotation at this time around 11c. Comber is moderately firm, but there is not sufficient demand to establish any firm flat price. About 13c. seems the top price at the moment. In the foreign comber the price ranges from 11½ to 12c. for a choice Sak. comber. The demand for threads continues light, some southern white slasher selling as low as 8c., with good colored thread purchasable around 7½c. Picker, fly, and linter are quiet. Good soiled card is as firm as anything is.

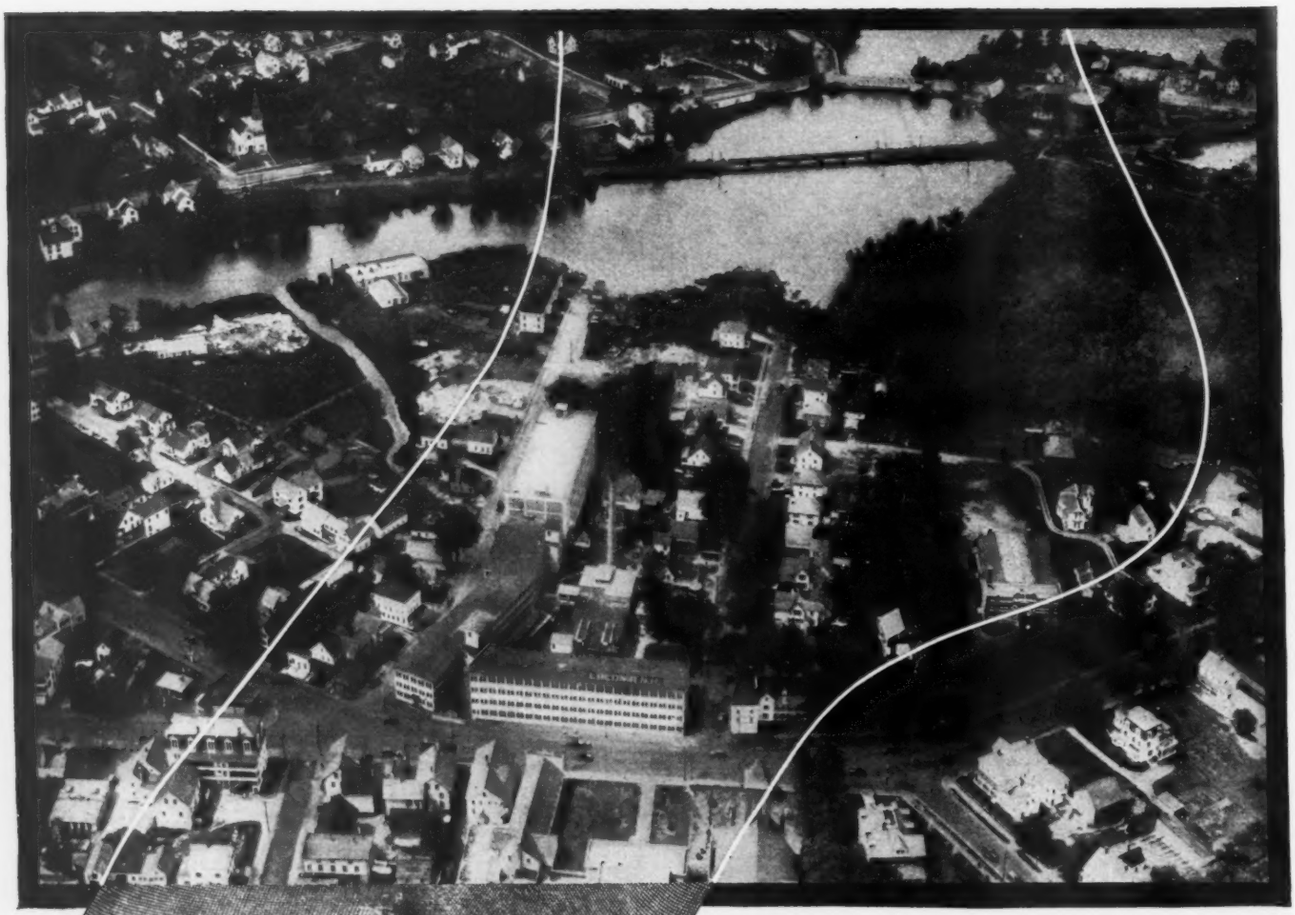
Cotton Steadies at 14c.

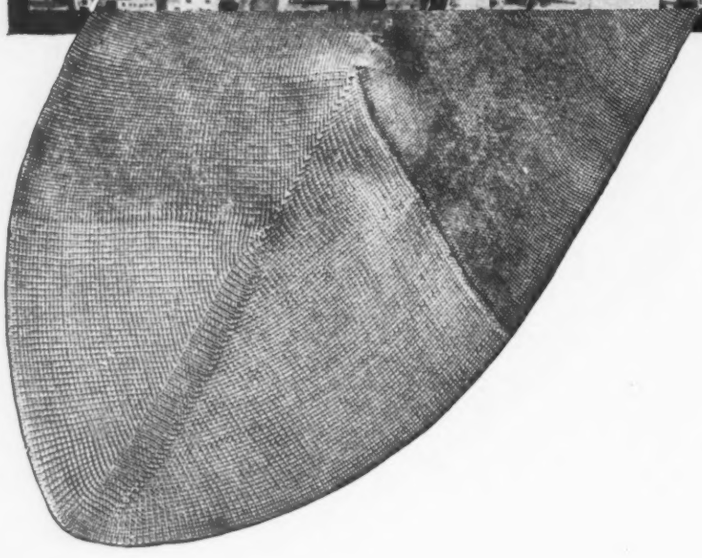
Rallies Follow on Trade Buying and Covering

THE decline which set in during the second half of February continued, until May contracts reached 14.03 and the new crop, as represented by the old October contract, 14.35 last Monday. These prices represented a decline of over 2c. a pound as compared with the high price touched on the February rally, and over 6c. a pound from the high price of last September in the case of the May delivery.

The market then showed indications of a strengthened technical position. Offerings tapered off as if the liquidation of contract holdings and the hedging of spot holdings had been pretty well completed. Rallies followed on covering combined with considerable trade buying, and the market showed a steadier tone toward the end of the week. It was not altogether clear whether this indicated that the break had been definitely checked by a feeling that the price had gone low enough to

HOME OF THE MODEL K
at Laconia, New Hampshire





The New
"GUSSET TOE"

THE new 340 Needle K stocking with Gusset Toe is the vogue among smartly dressed women.

Established 1865
SCOTT & WILLIAMS
Incorporated
366 BROADWAY, NEW YORK, N. Y.

assist in the campaign for reduced acreage, and to stimulate distribution of remaining old crop supplies, or merely an improved technical position in the speculative markets.

Low Price Only Stimulant

Except for the decline in the price and the falling off in offerings, there seemed no special feature in the situation to encourage a buying movement or materially stimulate covering. Reports from the domestic goods market showed no improvement. Business in cotton goods in Manchester quiet.

Farm work has been rather delayed by wet weather during the last week, but is believed to be well up to or further advanced than the average at this season of the year, and the world's consumption for the first half of the season as reported by the International Federation of Master Cotton Spinners' and Manufacturers' Associations tended to confirm recently reduced estimates of the season's probable total for American cotton.

According to the National Fertilizer Association, sales of fertilizer tags for the month of February in the southern States were 31.3% larger than for February, 1929, but 3.7% smaller than for February, 1928. Too much reliance should not be placed upon early sales of fertilizer tags as a guide to acreage. According to returns received here from a questionnaire present prospects point to a reduction of about 7.5% in acreage on the average but some reports indicate that the cut will be more drastic. In any case, the size of the coming crop will be largely a matter of conditions during the growing season.

International Federation's Report

The report of the International Federation indicated that the world's consumption of American lint cotton for the first half of the season had amounted to only 7,038,000 bales compared with 7,463,000 reported for the last half of the previous season and 7,613,000 for the six-month period ending Jan. 31, 1929. It was pointed out, however, that the world's consumption of all kinds for the half period amounted to 13,202,000 bales compared with 13,014,000 for the previous half year and 12,868,000 for the six months ending with January, 1929. In other words that the falling off in the consumption of American cotton has been due to substitution of other growths, and that notwithstanding all unsettled conditions, the world's consumption of all growths was being maintained at high levels.

●

Boston. — Light buying power and heavy selling explain technically the fall in cotton during the week to new low levels. The average price of middling at the ten designated markets reached a new low of 13.87 as compared with 14.99 on February 28, and 20.25 a year ago. The heaviest losses have been taken by the textile industry, which banked upon government support and bought cotton on high levels. The continued decline is taking the courage out of everybody, and there is no knowing how far cotton will fall.

Long-Staple Tariff

New England manufacturers are up in arms against the Senate proposal to have a duty of 7c. per lb. placed upon long-staple foreign cottons. New England mills utilize the greater part of the Egyptian imports year by year, and this sudden descent of farm interests into the manufacturing centers with a demand for a duty adding 25 to 30% to the price of this foreign cotton has caused considerable apprehension. A strong fight will be made against this duty, but southern and western farm blocs are so dominant in politics that New England may unfortunately lose out. Should the 7c. duty become law, New Bedford's tire-fabric as well as fine-goods and yarn mills will be severely affected.

Demand for extra staple cotton has not been active in New England consuming centers this week. The dip in futures served to upset all buyers' ideas of price, and there was a disposition to await stabilization before making further commitments.

Limited buying of Egyptians is reported from several quarters, medium grade Uppers being sought in the Boston market for replacements. Pima is inquired for occasionally but there is very little opening offered in the market. About 6,000 bales arrived from Egypt.

●

Memphis, Tenn., Mar. 10—Further extensive declines in cotton contract values have further restricted spots business. Declines have been so rapid and prices are now so far below minimum levels expected that much of the cotton held in first hands, unhedged, would not bring what has been borrowed on it. Under the circumstances, bankers and others who have been caught prefer to nurse their customers along and are exerting no pressure to force selling; this quite naturally limits offerings.

Buyers, owing to the unstable market, are trying to keep as closely hedged as possible, which they are finding difficult because the most wanted cottons can be found only in small lots; this restricts demand. Some buyers were rather severely injured on the break below 17c.; they trusted to the Farm Board to "peg" the price against further declines at about that level. While prices are now regarded as much too low, buyers are taking nothing for granted.

It would be difficult to find anyone who believes cotton acreage will be reduced as drastically as recommended by the Farm Board. Views here, for the belt as a whole, range from 4 to 10% maximum. Some expect an increase in the central belt and expect any decrease to come from the Atlantics and Oklahoma and Texas. Large sales of tractors are discouraging to the idea of reduction in western Texas. Tariff protection on staples is looked upon as encouraging to larger production in the Mississippi Valley and the irrigated sections of the Far West. Mill inquiry is extremely limited and, aside from a little filling in, almost none is resulting in orders.

Basis is quoted unchanged and, while nominal because not enough business is passing to test it, the opinion is pretty generally held that it is not likely to cheapen. The week, from a weather standpoint, was the most unfavorable since January. Field work was interrupted over much of the belt by rains, particularly in this territory. However, a favorable February gave new crop preparations a good start.

Contracting Chief Wool Feature

Spot Foreign and Domestic Wools Move on Steadier Basis

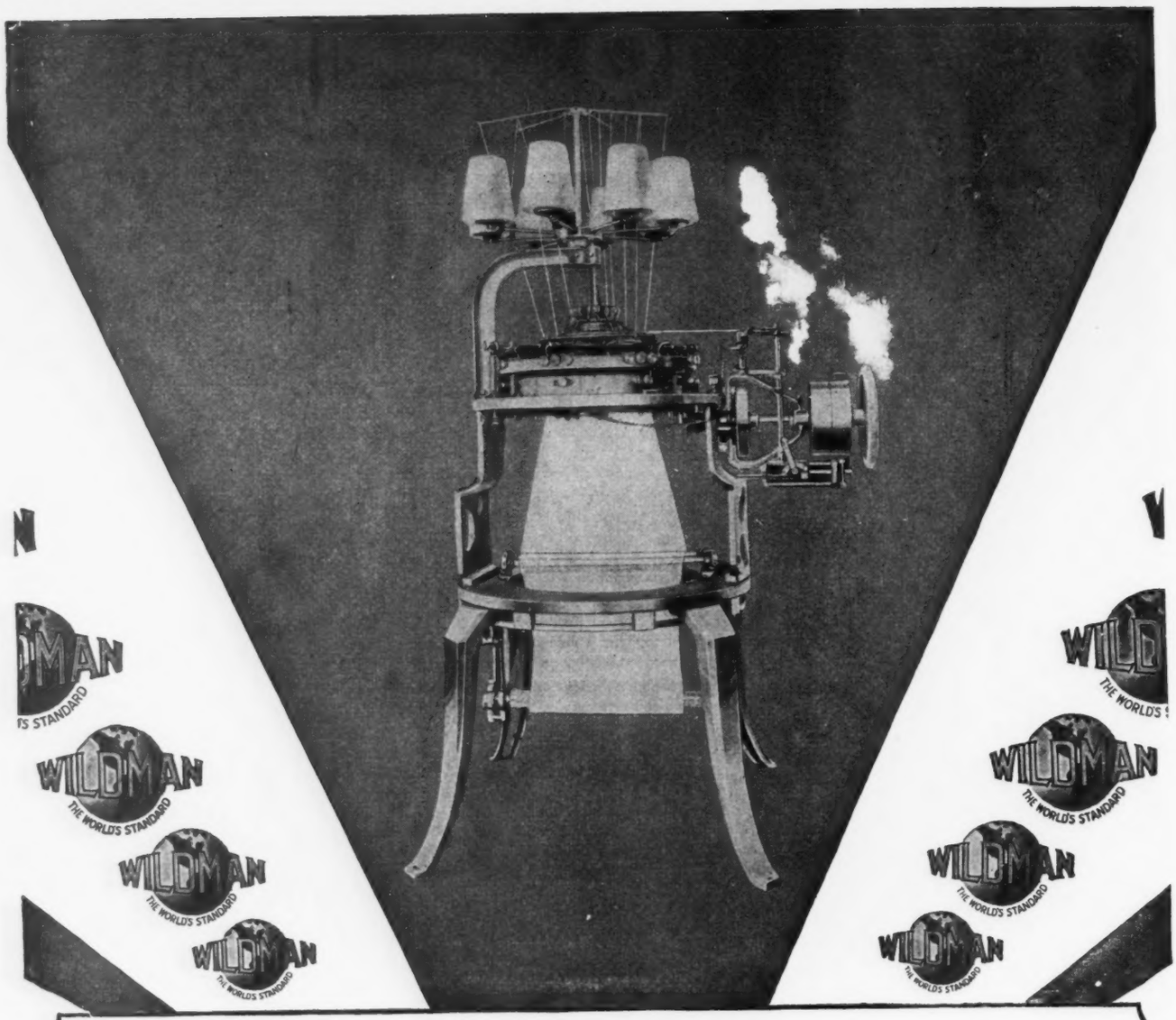
Boston.

Prices on domestic wool in the Summer Street district held firm throughout last wek. Consumer buying was smaller, although topmakers were fairly active in their search for cheap wools, and were able to acquire some of the shorter fine wools at prices which they considered favorable.

The wool trade and the national pool are both active in the contracting field, but there is no information available regarding their relative success. Some of the large, independent growers show reluctances to hand over their wools to the marketing organization, and in Texas there is a decided feeling against tieing up with the organization. Estimates vary as to the amount likely to be tied up by the National organization, but no one is willing to concede more than 100,000,000 lb. approximately 33% of the expected clip.

Small Stocks on Hand

Wools actually owned by the trade at this time are small in volume, but some consignors of wool are holding to the belief in an early rally in wool prices along the Atlantic seaboard. Nothing is heard about a wool-trade inventory. It almost seems that this time-honored custom of the Boston trade might go into the discard along with a lot of other things. As available offerings diminish, increasing strength becomes manifest;



The Wildman Body Machine has met the approval of all the makers of finest Rayon

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
SPRING NEEDLE BODY MACHINE

but there is no reason to expect any sharp upturn, with contracting still the most important feature of the market.

So far as it is known, consumption of wool, which showed a good increase in January, was maintained fully in February. The increased consumption of clothing wools was entirely in fine and ½ blood grades; the medium- and lower grades registered losses as compa with December. Carpet wo ade gain of 2,116,000 lb.

CAPE AND B. A. IMP

Imports of wool into Boston thus far this year are still several million pounds behind a year ago; of interest, therefore, was the arrival during the week of 1,728 bales of merino wool from South Africa. Foreign wools in the Boston market are considered to be on a reasonable price basis. Australian, South American, and New Zealand wools have all had a tremendous slump during the t three months, but dealers feel cer- n that the decline has now been alted.

During the low prices made around the middle of last month American houses were large buyers of B. A. wools, so that the amount shipped to the United States, very small in the first few weeks of the year, has risen to the respectable total of 21,000 bales, as compared with 22,400 bales last season, a relatively small decrease of 6% only. Montevideo shipments to the United States are 55% behind last year, the amount taken to March 1 being 9,800 bales, as compared with 18,100 bales last year.

Japan Backs Raw Silk Loan

Confirmation of Warehouse Plan Report Aids Market

RAW silk was in a decidedly stronger position this week, thanks to confirmation of the Japanese Government's plans to stabilize the industry. On Monday members of the Raw Silk Exchange received advices to the effect that Japan had decided to have the banks loan reelers 1250 yen per bale on such raw silk stocks as may be warehoused up to June 10.

The Japanese Government will compensate the banks, within and limited to 190 yen per bale, for any loss resulting from future disposal of the stored silk. This news brought a firming of the Japanese markets which in turn reacted favorably on the New York situation. The week was not marked by any great buying, as manufacturers continued skeptical of the outlook for finished products; but the tone was better.

IMPORTERS ENCOURAGED

Importers were satisfied with the progress to date, and were hopeful that the upward trend would continue. The hosiery situation is still a vexing problem. Some of the larger mills placed future business, but the less stable firms are carrying on from hand-to-mouth, with credit the outstanding question. So far as could be learned, the big indebtedness to raw silk houses has not been perceptibly reduced, nor is there any immediate prospect of settlement. Raw silk firms feel that the recent "price clearance" of hosiery, while it meant further loss, served to improve the outlook slightly.

Prices on the Exchange fluctuated during the week, but an upward trend was manifest. Comparisons at the end of the week showed a pleasing total of gains. March rose a flat 10c., May rose 9c. and there were no declines. The increase averaged 10c. Trading on March 6 was hesitant, as the market was awaiting confirmation of the stabilization news from Japan. Announcement of the Government's decision brought a firming March 8 and this strength carried into the current week. On March 10 prices were steady and there was considerable trading. A slight irregularity was manifest on Tuesday.

◆Knitted Outerwear Call Slackens

THE outerwear market appeared to be feeling a slight touch of the prevailing lull in knit goods this week. Bathing-suits were the only line registering any activity, and even here demand was lighter than in some weeks. However, bathing-suit orders are already so far ahead of production that the temporary slackening at this time was welcome.

The let-up was spotty, some mills reporting a spirited demand. Retailers were in the market all week, and a considerable quantity of reorders on bathing-suits were placed. The call was mainly for medium-priced lines, and the extreme backless bathing-suits for women were favored.

Fancy spring sweaters moved, but at a slower pace than might be expected for mid-March. The trend was to solid colors, and spot orders dominated. Mills were shipping steadily. Sweater stocks were plentiful, and there was no indication of shortage. Staple heavyweight sweaters were very slow. Millmen have booked much less business than at the same time last year, and they are uncertain as to when they may look for a real demand.

What's the Matter With Hosiery?

Mill Representatives Offer Views on Cause of Weakness

A SLIGHT improvement was noted both in women's full-fashioned and in half-hose, but it was still an out-and-out buyer's proposition. Mill agents and sales managers wrote little business during the week, except at the lower end, and most of this was "clearance." They were bewildered by the present situation in hosiery and offered various suggestions as to the cause of the weakness.

One factor said the full-fashioned mills in the South are too fond of distributing their selling privileges among different agents, with the result that the agents compete with each other on the same line, and cut prices to the bone. Some mills, according to this informant have as many as six agents serving them, and he said this practice was responsible in part at least for the current weakness in full-fashioned prices. He agreed that overproduction was a major evil, but he added that if mills would pick out one agent in each instance and give him exclusive rights, they would find their lines moving more satisfactorily and at firmer prices, as each mill would get individual attention from the agent.

HALF-HOSE SLIGHTLY BETTER

Half-hose is in a fair position compared to full-fashioned, but here too prices are on a take-what-you-can-get basis, with the actual profit of the deal completely ignored. Men's lines were selling quietly this week, and some firms claimed they were selling at list prices. Fancies of the more somber patterns were preferred; the trend is toward two or three colors, harmoniously blended and smaller and fewer designs, making the base color of major importance. Clocks in conservative effects were strong. One new line just offered was an all-black sock with a slight jagged yellow-and-blue design up the outside. The ornamentation is very subdued and a quiet refined aspect is presented. This number is very much in line with the style tendency.

"ALL-OVERS" BLAMED

Discussing the half-hose situation, one jobber said the weakness was due to the fact that numerous half-hose mills lack machines to produce the new conservative designs and are still turning out the all-overs. Real consumer call for all-overs vanished last fall, and now these numbers are a drug on the market. Failing to get movement, the mills threw their stocks out for a "what have you"; the bottom went out of prices, and this brought a depression so general that it affected even the new style-right lines.

When service is imperative...

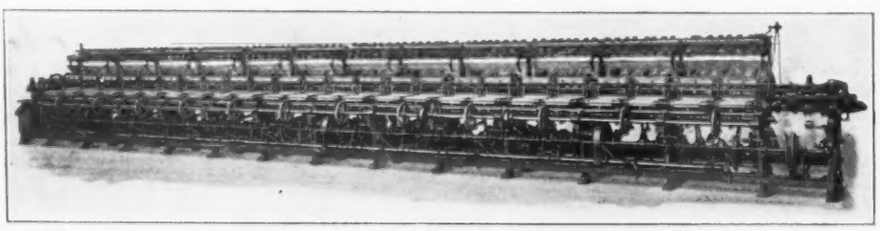
due to market changes

When Fashion says, "Make it this way," how soon can your mechanical equipment be ready to meet the changing demand? Are you off with the leaders or back with the tail-enders?

Since the first of this year we have received more than 500 orders for major attachments for the Reading Full-Fashioned Knitting Machine. To date, *more than 80% of these orders have been delivered and installed*

The secret of the ease and dispatch with which "Reading" machines can be equipped to meet market changes lies in their *standardization.* When our service men arrive at your mill with the attachments ordered they know what is to be done and how to do it. There is no "rebuilding," no special machine work necessary to adapt the attachment to your machines. Production is interrupted for only a few hours—not weeks or months—before your mill is turning out the advanced styles that bring top price.

TEXTILE MACHINE WORKS - - - - - *Reading, Pa.*



No one appreciates the standardized design of Reading Full-Fashioned Machines more than the mill-owner who has stood by with idle or obsolete machines while his competitors worked at capacity to meet the new demand.

◆Underwear Market Is Uncertain

BUYER interest in knitted underwear was confined largely to medium and lightweight lines, and even there the demand was only moderate. Rayons and balbriggins moved at a steady pace, orders being confined to spot and nearby coverage; nainsooks, which took a spurt forward last week, eased somewhat, though there was still a fair interest manifest.

Heavyweights Lagging

Heavyweights continued slow, and producers did not look for any real pickup prior to April 1. The larger mills did a light consistent business; the lull was felt most by the numerous small firms. Knitters estimated that heavyweight buying was about 60 days behind. Inquiry in Worth Street disclosed that the majority of the heavyweight underwear mills have slowed up production, in the hope of strengthening the market; no drastic curtailment is under way, and a considerable portion of the industry still produces normal quantities, but it is hoped the slackening may prevent any great surplus.

The slow movement of heavyweights has raised the question of whether summer will bring a sudden rush of orders. It was pointed out that heavy buying in the last few months before the actual heavyweight season starts would mean that demand would exceed production. It also would create an abnormally strong seller's market, as, if a mill's capacity is 100,000 dozen a month, and that mill gets orders for 200,000 doz. in any given month, the sales manager naturally can do what he pleases about prices.

◆Uncertainty In Wool Goods

THERE is a condition of uncertainty apparent in wool goods markets, and it is not expected that business will develop until some of the dust raised by recent openings has had time to settle. Fabric openings at sharp recessions fully reflect the lower value of raw wool, but many buyers fear that the bottom has not been reached. With this feeling in the air, buying is expected to remain hesitant. Some degree of stabilization may be achieved by the recent announcement of Samuel Hird & Sons to the effect that they are guaranteeing prices against reduction for the balance of the season. It is highly probable that other leading houses will take similar action and restore confidence once more.

Clothing Manufacturers

Lower prices for fabrics present an additional problem to garment makers. A current question in the market is, "Will clothiers offer better cloth values at present suit prices, or will clothes prices be reduced in line with fabric costs?" Opinions on this point seem to be about evenly divided. Many favor a price reduction, but others, who have established themselves in certain price ranges, favor the plan of giving better value at unchanged prices.

Many additional openings took place late last week and in the current week. Prices, on the average, showed the same declines as did those of the American and other early openers.

Improved Cotton Goods Buying

Gray Goods Prices Discount Cotton Decline

COTTON piece goods buying has improved somewhat, but is still far from satisfactory. Raw cotton underwent a severe and continual decline all last week, with goods prices suffering accordingly. Quotations of most gray goods have discounted the present, or even probable, recession in the staple. It is very likely that buyers had this phase in mind while making recent purchases.

The cotton market registered fair-sized gains around mid-week, and showed signs of increased firmness. This condition seemed to hold up pending transactions in some instances. Mills were not anxious for business at prevailing low levels, and buyers seemed to lack faith in the action of the staple. Consequently there was a heavy bear pressure from buyers.

Print Cloths

Sales of print cloths totaled a fair yardage, with a rather steady business in 80 squares. For nearby delivery this number sold for 8¼c. Further weakness cropped out in the 5.35 yd. 64x60s. Spots and March-April deliveries could be had at 6c., with reports of late summer deliveries in a few centers. There were also intimations that second-hands were willing to make slight concessions from this level. Print-cloth dobbies of various types were said to be more active.

Denims

Men recently returned from the Middle West and Southwest, state that denim business is slow and confined mainly to fill-in orders. The road men of a great many overall manufacturers travel by automobile and the severe winter throughout the West, and even in parts of the South curtailed their activities a great deal. It is understood that some mills making inferior quality fabrics have lowered their prices somewhat. The leaders in the field are still firm, although they admit that prices for the coming quarter will undoubtedly show a revision in line with lower cotton.

Summer Velvets Selling

Early Call for Piles for Suitings Reported by Mills

BROADSILKS were steady, with both piece goods buyers and cutters showing sustained interest. The tone of the market was stronger than last week, and numerous good-sized orders were placed. Demand covered a wide range of early summer and July-August fabrics. There was little future coverage at any end, except in the case of shantungs where buying was so active that some mills would take none but advance contract business. Flat crepes, both silk and rayon lines, were moving; cantons were in demand for suitings; and there was an early call for velvets for summer suit manufacture.

Summer Velvets

Summer velvets in solid colors began to move this week, somewhat earlier than usual, but the demand was mostly preliminary and confined to "feelers"; the call was for blue or cerise for suitings, and various green tones for evening wraps. Evening wrap velvets have been moving quietly for some time. Velvet suitings in black enjoy their usual importance. These piles include silk-back and cotton-back.

Chiffons and Georgettes

Chiffons and georgettes are strong, especially in prints. Large florals which opened big, are now subordinate to small designs in all-over printed patterns. The new silhouette has encouraged buyers to confident commitments on the whole sheer range for formal and semi-formal wear.

Price-cutting has cleared most of the spring cantons, though a few mills still have stocks available. The reductions were less than they were in other years. Cantons held favor steadily, and the "bargain" stocks found quick customers. Early clearance of printed sheers is looked for this year, due to the swift turnover of recent weeks. There is no great surplus available anywhere.

QUOTATIONS

at close of business, March 12, 1930
Prices cover average qualities unless otherwise stated

Cotton Goods

	Mar. 12	Mar. 5	Mar. 13 1929
PRINT CLOTHS			
27 -in., 64x60, 7.60	4¼–4¾c.	4¾c.	5⅛c.
38½-in., 64x60, 5.35	6 –6⅛c.	6⅛c.	7⅛– 7⅜c.
39 -in., 68x72, 4.75	7c.	7⅛–7⅛c.	8½– 8¾c.
39 -in., 72x76, 4.25	8c.	8⅛–8⅜c.	9⅛–10c.
39 -in., 80x80, 4.00	8¾c.	8¾–8⅞c.	10⅛c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	7⅛c.	7⅛c.	8⅛c.
36-in., 48x48, 3.00	9c.	9⅛c.	10⅛–10⅛c.
37-in., 48x48, 4.00	6¾c.	6¾c.	8⅛– 8⅜c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70	7⅛–7⅜c.	7⅛–7⅜c.	8⅛c.
36½-in., 64x60, 5.75	6¾c.	6¾c.	7⅛c.
MISCELLANEOUS			
Drills, 37-in., 3 yd	9c.	9⅛c.	11⅛c.
Denims, 2.20	15c.	15 c.	17 c.
Tickings, 8 oz	19⅛c.	19⅛c.	21⅛–23c.
Standard prints	9⅛c.	9⅛c.	9c.
Eastern staple ginghams, 27-in	10c.	10c.	10⅛c.

Cotton Waste

Peeler comber	12½—13½
Peeler strips	10½—11½
Sak. comber	11 —11½
Choice willowed fly	6 — 6⅞
Choice willowed picked	5 — 5⅞
Sak. strips	13 —14
Linters (mill run)	3½— 4
White spooler (single)	8 — 9

Cotton Yarn

CARDED—(Average Quality)
Double carded 2c.–4c. higher according to quality

SINGLE SKEINS OR TUBES—(Warp Twist)

4s to 8s	$0.25½– .26	20s	$0.28½– .29
10s	.26 – .26½	24s	.30½– .31
12s	.26½– .27	26s	.31½
14s	.27 – .27½	30s	.33½– .34½
16s	.27½– .28	40s ex. qual.	.46 – .47

TWO-PLY SKEINS AND TUBES

6s-2	$0.26	26s-2	$0.33
10s-2	.26½	30s-2	.34 – .34½
12s-2	.27	36s-2	.39 – .41
14s-2	.27½	40s-2	.43
16s-2	.28	40s-2 hi b'k	.47 – .49
20s-2	.29 – .29½	50s-2	.50
24s-2	.32	60s-2	– .58

SINGLE WARPS

10s	$ – .26½	24s	$0.31½
12s	.26½– .27	26s	.32½
14s	.27 – .27½	30s	.35½
16s	.27½– .28	40s ex.qual.	.47 – .48
20s	.29		

TWO-PLY WARPS

8s-2	$0.26½– .27	24s-2	$0.32½
10s-2	.27 – .27½	26s-2	– .33½
12s-2	.27½– .28	30s-2	.34½– .35
14s-2	.28 – .28½	40s-2 ordin.	.43
16s-2	.28½– .29	50s-2	.50 – .51
20s-2	.29½– .30	60s-2	.58 – .59

8s-2 and 4-ply skeins and tubes; tinged, 23; white 25½; waste 21-21½

HOSIERY CONES (Frame Spun)

8s	$0.25	22s	$0.29
10s	.25 – .25½	24s	.30 – .31
12s	.25½– .26	26s	.31 – .32
14s	.26 – .26½	30s tying	.32 – .33
16s	.26½– .27	30s reg	.34 – .34½
18s	.27 – .27½	30s ex.qual.	.35 – .36
20s	.28 – .28½	40s	– .42

COMBED PEELER—(Average Quality)
WARPS, SKEINS AND CONES

	Merc. Tw.	Wp. Tw.		Merc. Tw.	Wp. Tw.
20s-2	$0.42	.43	60s-2	$0.62	.63
30s-2	.48	.49	70s-2	.72	.73
36s-2	.49	.50	80s-2	.84	.85
40s-2	.50	.51	90s-2	1.01	1.07
50s-2	.55	.56	100s-2	1.28	1.32

SINGLES

12s	$0.35½	30s	$0.45 – .46
14s	– .36	38s	.48 – .49
16s	– .36½	40s	.49 – .50
18s	.37 – .37½	50s	.53½– .54½
20s	.38 – .38½	60s	.61 – .62
24s	.40½– .41	70s	.71 – .72
28s	.43½– .44	80s	.83 – .84

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0.62 –0.64	90s-2	$1.45 –1.50
30s-2	.63 – .65	100s-2	1.75 –1.80
36s-2	.66 – .67	120s-2	2.15 –2.20
40s-2	.68 – .70	30s	.77 – .80
45s-2	.71 – .73	40s	.82 – .84
50s-2	.73 – .75	50s	.87 – .90
60s-2	.82 – .85	60s	.94 – .99
70s-2	.97 –1.00	70s	1.10 –1.15
80s-2	1.09 –1.12	80s	1.32 –1.37

COMBED REVERSE TWIST THREAD YARNS
(Skeins, Tubes or Cones, 2, 3 and 4-Ply)

	Peeler Average	Peeler Best	Sakelarides Average	Sakelarides Best
24s	$0.48–0.49	$0.58	$0.69	$0.74
30s	.51– .52	.61	.72	.77
36s	.53– .54	.63	.75	.80
40s	.58– .59	.67	.79	.84
45s	.63– .64	.72	.84	.89
50s	.68– .69	.77	.89	.94
60s	.78– .79	.87	.99	1.04

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed Mar. 6	For Week High	For Week Low	Closed Mar. 12	Net Change
March	14.42	14.52	13.89	14.46	+.04
April	14.53	14.56	13.39	14.56	+.03
May	14.67	14.82	14.03	14.68	+.01
June	14.71	14.75	14.19	14.75	+.04
July	14.70	15.05	14.29	14.85	—.05
August	14.93	14.93	14.33	14.88	—.05
September	14.97	14.97	14.37	14.92	—.05
October	15.02	15.17	14.35	14.98	—.04
November	15.14	15.14	14.52	15.04	—.10
December	15.24	15.34	14.58	15.16	—.08
January	15.25	15.40	14.60	15.20	—.05

MIDDLING SPOT FLUCTUATIONS FOR WEEK

	New York	New Orleans	Liverpool
Friday, Mar. 7	14.15	14.00	8.18
Saturday, Mar. 8	14.05	13.85	7.98
Monday, Mar. 10	14.00	13.79	7.90
Tuesday, Mar. 11	14.30	14.08	7.88
Wednesday, Mar. 12	14.55	14.34	8.06
Thursday, Mar. 13	14.50	14.28	8.02

SPOT FLUCTUATIONS AND STOCKS

Market	Mar. 5	Mar. 12	Sales	Stocks This Week	Stocks Last Year
Galveston	14.90	14.85	2,748	325,726	444,076
New Orl'ns	14.41	14.34	7,940	476,675	338,414
Mobile	14.20	14.15	.....	28,145	26,502
Savannah	14.32	14.43	.....	58,789	44,558
Norfolk	14.81	14.81	2,455	58,864	83,184
New York	14.60	14.55	2,200	95,616	95,419
Augusta	14.69	14.69	1,624	89,477	77,138
Memphis	14.00	13.90	6,340	382,999	232,069
St. Louis	14.25	13.75	.....	13,431	23,746
Houston	14.70	14.70	11,875	905,578	720,151
Dallas	14.25	14.15	4,942	.....	.....

BASIS MIDDLING

	Saturday Mar. 8	Saturday Mar. 1
10 markets average	13.88	14.90
Memphis	13.45	14.55

PREMIUM STAPLES

First Sales from Factors Tables at Memphis

Grade Strict Middling	Prices Nominal
1⅛-in	17 20 – 17.45c.
1 5/16-in	18.40 – 18.65c.
1½-in	22.25 – 22.50c.

CURRENT SALES

	For Week	Prev. Week	Week Before
Memphis total	8,164	12,017	10,524
F.o.b. included in total	6,725	10,355	9,633
10 markets	39,699	37,809	48,414

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	12,117	13,788	13,749
Gross receipts	28,409	31,170	33,282
Total since Aug. 1, net	854,755	749,668	586,542
Shipments	38,160	46,109	30,762
Total since Aug. 1	1,371,388	1,350,201	1,128,927
Total stock	385,469	236,567	233,544
Decrease for week	9,751	14,939	2,480
Unsold stock in hands of Memphis factors	55,219	.....	.....
Increase for week	986	.....	.....

AVERAGE PRICE MARCH-APRIL SHIPMENT HARD WESTERN COTTON

	Middling	St. Middling
1 1/16 in	17½–18c.	18½–19c.
1⅛ in	18½–19c.	19½–20c.
1 3/16 in	20½–21½c.	21½–22½
1¼ in	24 –25c.	26 –27c.

Basis on New York, May, 14.68c.

DIFFERENCES ON AND OFF MIDDLING
WHITE GRADES

	Dallas	Memphis	Montgomery	Augusta	Average
M. F	1.05†	.90†	1.00†	1.25†	1.07†
S. G. M	.90†	.65†	.90†	1.00†	.89†
G. M	.75†	.50†	.75†	.75†	.72†
S. M	.50†	.35†	.50†	.50†	.50†
S. L. M	.75*	.75*	.85*	.75*	.75*
L. M	1.75*	1.50*	1.75*	2.00*	1.70*
S. G. O.**	3.00*	2.50*	2.75*	3.25*	2.80*
G. O	4.00*	3.50*	3.75*	4.25*	3.78*
YELLOW TINGED					
G. M	.50*	.50*	.50*	.50*	.50*
S. M	1.00*	1.00*	1.00*	1.00*	1.00*
M.**	1.75*	1.50*	1.50*	1.50*	1.60*
S. L M.**	2.50*	2.00*	2.25*	2.25*	2.27*
L. M.**	3.25*	3.00*	3.00*	3.00*	3.15*
YELLOW STAINED					
G. M	1.50*	1.50*	1.50*	1.50*	1.50*
S. M.**	2.25*	2.25*	2.50*	2.50*	2.35*
M.**	3.00*	2.75*	3.50*	3.50*	3.15
BLUE STAINED					
M. G.**	1.75*	1.25*	1.75*	1.75*	1.65*
S. M.**	2.25*	2.00*	2.75*	2.75*	2.40*
M.**	3.00*	2.50*	3.75*	3.75*	3.18*

**Grades not deliverable on contract. †On Middling. *Off Middling.

EGYPTIAN COTTON

March-April Shipment c.i.f.	Boston	Change
Fully good fair Sak	30.05	+0.25
Fully good fair to good uppers	22.00	.....
(By John Malloch & Co.)		
Alexandria Exchange, Mar. 12		
March Sak	27.75	+0.25
April uppers	19.41	—0.01

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA

Fine delne.	$0.32 –$0.33	¾ blood	$0.34 –$0.35
Fine clthg.	.24 – .25	½ blood	.33 – .34
¼ blood	.34 – .35		

TEXAS AND CALIFORNIA

Texas, 12 months	$0.75 –$0.78
California, Northern	.70 – .72

PULLED—EASTERN (SCOURED BASIS)

AA	$0.83 –$0.85	B-Super	$0.63 –$0.65
A-Super	.68 – .72	C-Super	.55 – .58

MONTANA, IDAHO AND WYOMING (SCOURED BASIS)

Staple fine	$0.78 –$0.80
Staple ½ bld.	.73 – .78
Fine and fine medium	.70 – .73
¾ bld. blood	.65 – .68
½ blood	.63 – .65

MOHAIR—DOMESTIC

Best carding	$0.40 –$0.43
Best combing	.57 – .60

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.35 –$0.38
Cape firsts	.35 – .38

FOREIGN CLOTHING AND COMBING (IN BOND)

Australia:	
70s	$0.71 –$0.73
64s	.58 – .60
58s-60s	.51 – .53
Montevideo:	
58-60s	$0.25 –$0.26
56s	.25 – .26
50s	.24 – .25
Buenos Aires:	
4s, 40-44s	$0.21 –$0.22
5s, 36-40s	.18 – .19

FOREIGN CARPET (GREASE BASIS IN BOND)

China: Combing No. 1	$0.23 –$0.24
China Filling Fleece	.22 – .24
Szechuen ass't	.23 – .24
Cordova	.20 – .22
Scotch black face	.23 – .24
East India: Kandahar	.32 – .34
Vican'r	.37 – .39
Joria	.37 – .39
Aleppo	.35 – .36

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s, 36s	$1.00 – 1.05
2-24s, 40s	1.10 – 1.15
2-26s, 44s	1.20 – 1.25
2-28s, 46s	1.22½ –1.27½
2-30s, 48s	1.32½– 1.37½
2-32s, 50s	1.35 – 1.37½

(Single yarns 5c. less than above)

2-36s, 58s	1.52½– 1.55
2-40s, 60s	1.57½– 1.60
2-40s, 64s	1.60 – 1.62½
2-50s, 66s	1.82½– 1.87½
2-60s, 70s	2.30 – 2.35

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$1.10 –$1.15
2-20s, 50s in oil	1.20 – 1.22½
2-20s, 56s in oil	1.37½– 1.40
2-20s, 60s in oil	1.52½– 1.55
2-20s, 64s in oil	1.57½– 1.60
1-15s, 46s dyed	1.27½– 1.30
1-15s, 48s dyed	1.30 – 1.32½
1-15s, 50s dyed	1.32½– 1.35

FRENCH SYSTEM

1—20s, 58s	$1.35 –$1.40
1—20s, 60s	1.40 – 1.45
1—26s, 64s	1.45 – 1.47½
1—30s, 60s..Warp	1.55 – 1.57½
1—30s, 64s..Warp	1.60 – 1.62½
2—30s, 64s..Fancy mixes	1.80 – 1.85
2—40s, 64s..Zephyrs	1.75 – 1.77½
1—50s, 66s	1.75 – 1.80
2—50s, 66s	1.90 – 1.95
1—60s, 70s	2.17½– 2.22½
2—60s, 70s	2.32½– 2.37½

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$1.12½–$1.17½
1-40s, 50-50-60s on cops	1.30 – 1.32½
1-40s, 50-50-64s on cops	1.32½– 1.35
1-40s, 50-50-64s Australian cops	1.35 – 1.40

Underwear mixes, 3c. additional
Solid color, 35c. additional.

◆

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$1.00 –$1.05
Half-blood (60-62s)	1.00 – 1.03
High ¾ blood (58s)	.92 – .95
Aver. ¾ blood (56s)	.90 – .92
Low ¾ blood	.85 – .87
High ½ blood (50s)	.80 – .85
48s N. Z.	.76 – .78
46s S. A. and N. Z.	.73 – .75
44s S. A. and N. Z.	.68 – .70
40s S. A. and N. Z.	.65 – .68
36s S. A. and N. Z.	.65 – .68

TOPS—BRADFORD, ENG. (MARCH 8)

Fine (70s)	31d	¾ bld. (56s)	21d
Fine (64s)	28d	½ bld. (50s)	18d
½ bld. (60s)	27d	Cross-bred (46s)	15d
¾ bld. low (58s)	24d		

NOILS—BOSTON

Fine	$0.52–$0.55	High ½ bld.	$0.41–$0.43
Half-bld.	.48– .50	Low noils	.35– .38
Aver. ¾ bld.	.44– .46	Medium colored	.30– .35
Fine colored	.35– .40		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.82 –$0.85
Lap, fine colored	.58 – .63
Hard ends, fine white	.60 – .65
Hard ends, ½ blood white	.45 – .48
Hard ends, fine colored	.32 – .35
Hard ends, medium colored	.23 – .28
Card, fine White	.30 – .35
Burr, fine Carbonizing	.38 – .43

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.06½–$0.07
Merinos, Fine Dark	.05 – .05½
Merinos, Fine Light	.15 – .16
Serges, Blue	.09 – .09½
Serges, Black	.08½– .09
Serges, Red	.11½– .12½
Knit, White	.34 – .35
Knit, Red	.18 – .19
Knit, Light Hoods	.17½– .18½
Worsted, Light	.06 – .07
Worsted, Blue	.09 – .09½
Worsted, Black	.08 – .08

Silk Yarns

THROWN SILK (60 day basis)

Japan organzine, 2 thd. grand XX in skeins	$6.00
Japan organzine, 2 thd. sp. crack in skeins	5.75
Japan crepe, 3 thd. grand XX in bobbins	6.10
Japan crepe, 3 thd. sp. crack on bobbins	5.80
Japan crepe, 4 thd. crack on bobbins	5.75
Canton crepe, 3 & 4 thd. ns. 14/16 on bobbins	3.70
Tussah tram, 2 end on cops	2.45
Hosiery tram, 3 thd. Japan XXX	6.50
Hosiery tram, 5 thd. Japan G XX	5.80
Hosiery tram, sp. crack XX	5.40
Hosiery tram, crack XX	5.30
Hosiery tram, XX	5.20

SPUN SILK YARNS—(Terms: net 30)

40/2	$4.25	60/2	$4.55
50/2	4.40	62/1	3.50

Raw Silk

(60 day basis)

Japan filature, grand XX, 13/15	$4.95
Japan filature, sp. crack XX, 13/15	4.90
Japan filature, crack XX, 13/15	4.70
Japan filature, XX, 13/15	4.65
Japan filature, best X, 13/15	4.55
Japan filature, X, 13/15	4.45
Canton filature, new style, 14/16	2.75
Canton filature, new style 20/22	2.65
Tussah filature, 8 cocoon	1.80
Grand XX (Yellow) 20/22	4.70
Grand XX (White) 20/22	4.65
Sp. crack (Yellow) 20/22	4.65
Sp. crack (White) 20/22	4.65
Crack (Yellow) 20/22	4.65
Crack (White) 20/22	4.55

NATIONAL RAW SILK EXCHANGE

	Close March 5	For the Week High	Low	Close Mar. 11	Net Chg.
March	4.45	4.53	4.35	4.55	+ .10
April	4.45	4.50	4.30	4.48	+ .03
May	4.36	4.43	4.25	4.45	+ .09
June	4.33	4.38	4.23	4.35	+ .02
July	4.30	4.31	4.20	4.30	.....
August	4.26	4.31	4.20	4.29	+ .03
September	4.25	4.28	4.20	4.25	.....
October	4.25	4.28	4.18	4.25	.....

March 5 to March 11—Total contracts 209. Total number of bales, 2,090. Total approximate value $1,254,000.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	First Quality	Second Quality
75	18	$2.35	$1.65
75	30	2.45	1.75
100	18	1.95	1.60
100	40	2.00	1.65
125	18	1.45	1.25
125	36	1.50	1.30
150	24–32	1.15	1.10
150	36	1.20	1.15
150	60	1.35	1.30
150	75	1.50	.....
170	24–27	1.15	1.10
170	60	1.35	1.30
200	30–32	1.10	1.05
200	60	1.30	1.25
300	40–60	1.00	.95
400	72	1.10	.95
450	54	1.00	.95
600	72–96	1.00	.95
900	100–144	1.00	.95

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
35	$3.50	$3.25	125	$1.45	$1.25
50	2.75	2.50	140	1.15	1.10
75	2.35	1.65	150	1.15	1.10
100	1.95	1.60	160	1.15	1.10
			175	1.15	1.10

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	25	$4.15	40	30	$3.15
25	25	3.65	52	30	3.00
30	25	3.40			

(Due to diversified offerings prices for higher denier are not listed.)

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.75	120	$1.90
55	2.55	150	1.60–1.85
75	2.25–2.70	200	1.55
100	2.00–2.45	300	1.50

Rayon Waste

Open bleached waste	$0.30
Open unbleached waste	$0.24 – .26
Bleached thread waste (mfs.)	..... .15
Bleached thread waste (misc.)	..... .11
Colored thread waste	.08 – .10
Colored clips	..... .12

CONVERTED RAYON WASTE

Bleached tops	–$0.55
Unbleached tops	– .48
Bleached noils	– .19
Bleached garnets	.23 – .25
Unbleached garnets	.21 – .23
Colored garnets	.16 – .20

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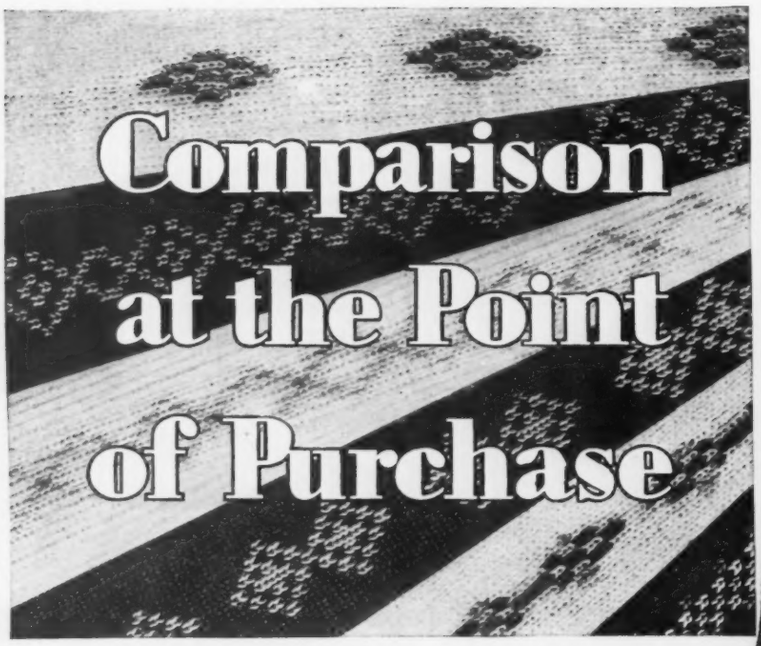
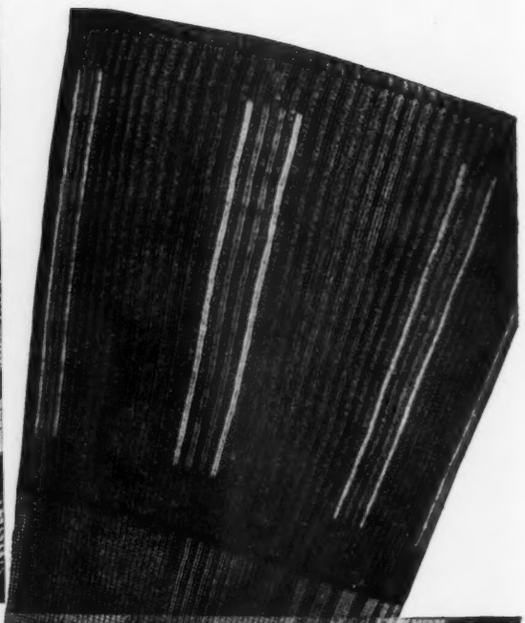
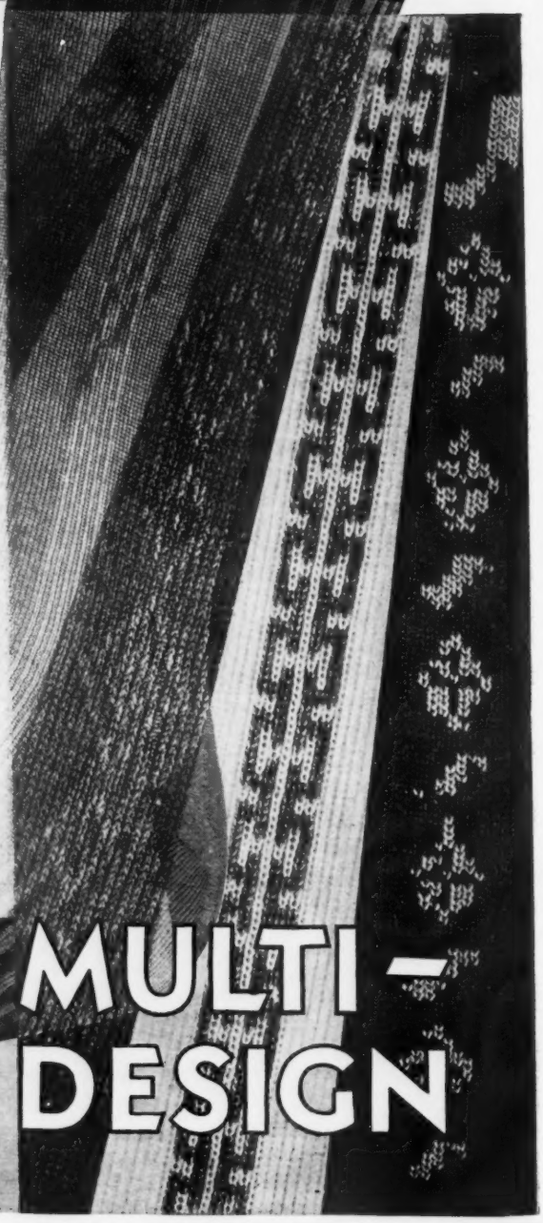






may raise a peak or sink a valley in *your* sales curve, if you are marketing Men's Half Hose.

In that connection, how is your product faring *now* on dealers' counters—side by side with the attractive patterned FANCY TOPS which represent the latest style trend in Half Hose? As knit on Fidelity Multi-Design True-Rib Machines in countless combinations of the new quiet colors and designs, these FANCY TOPS can speed up *your* sales, too. Investigate now.

FIDELITY MACHINE CO.
3908-18 Frankford Avenue
PHILADELPHIA, PA.

THE FIDELITY UNIVERSAL RIBBER

Dyeing Vat Colors on Silks

(Continued from page 57)

labor costs; and (3) the risk of damage to the silk with a consequently higher proportion of claims and seconds.

The first item varies within very wide limits, depending upon the choice of color, the depth of shade, and the method of dyeing. Most of the dyestuff manufacturers issue cards showing their vat colors on silk, from which some idea can be obtained of the percentage required for any particular shade, but in the heavier shades it is never advisable to rely too much on these for costing purposes, the only reliable way being to dye a lot of goods under the usual working conditions. Many of the best vat colors have too little affinity for the silk fiber to permit their use for anything but pale shades; thus a medium shade on organzine may cost over 30 cents a pound for dyestuff alone against 1 to 2 cents for a good direct or acid color.

The following list of dyestuffs includes some of the best working colors on silk together with those of good affinity suitable for the heavier shades: Anthra Yellow GC, Ponsol Brilliant Yellow 4G, Golden Orange 2RT, Brown AG and AR, Olive AR, Pink B, Indanthrene Golden Orange 3G, Brilliant Violet RK, Blue Green B, Blue RK, Rubine R, Hydron Orange RF, Helindone Orange R, Sulfanthrene Pink FF, Red 3B, Ciba Blue G, Cibanone Grey RN, Anthrene Jade Green. It is not the purpose of the present article to give specific instructions for the use of any of these colors, as these are furnished in the dyemaker's pattern cards, but it is possible to indicate in a general way the procedure which has given satisfactory results.

Vat Dyeing Methods

In the few cases where jig dyeing is permissible it will generally be found possible to use the same concentration of caustic soda (6 pints at 65° Tw. to 35 gal. dye liquor) and the same temperature, 110° F., for all the dyestuffs. The color, with the addition of small amounts of alcohol and soluble oil, is reduced and added to the dyebath in two portions—first and second ends. It is advisable to have about 1% Protectol No. 2, calculated on the weight of goods, in the dye liquor. Excess of hydrosulphite should be insured by using about 25% above the recipe quantities for cotton. After five ends on the jig the silk is oxidized without washing, in a bath of sodium perborate (2 oz. to the gal.) at 130° F. If a swatch soaped in the laboratory shows the shade to be too far away from the standard, the fabric should be washed off, and the procedure outlined above repeated with the fresh dyestuff. When a satisfactory match is obtained, the batch is soaped at 190° F. and finally washed.

In the case of hank-dyed silk, or silk suspended at open width, it is advisable to follow more closely the recommended conditions for each particular vat color as regards reduction temperature and concentration, temperature of dyeing, quantities of caustic soda and hydrosulphite, etc., since the ratio of goods to liquor is likely to be as high as 1 : 50 (as against about 1 : 8 in jig dyeing), and the question of getting full value from the color assumes great importance. However, for light shades a uniform concentration of caustic soda (6 pints at 65° Tw. to 100 gal.), and a temperature of 110° to 115° F. can be used with satisfactory results. In duplicating shades it is very important to maintain exactly the same ratio of goods to liquor, this being as important as correct percentages of dyestuff. An addition to the dyebath of 1 oz. Protectol per gal. of liquor is recommended, since if the dyeing is prolonged in order to get a satisfactory match, it will give some needed protection to the silk fiber. After dyeing to shade, the silk hanks are carefully wrung out, and hung for about 30 min. in the air. During this oxidation it is advisable to give the hanks a shake and turn. When oxidation is complete, the goods are rinsed and afterward soaped and brightened in the usual way.

TEXTILE CALENDAR

Southern Textile Association, Carders' Division, spring meeting, Clemson College, S. C., March 21, 1930.

•

Cotton Manufacturers Association of Georgia, Annual Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga., April 3-4, 1930.

•

Southern Textile Association, Master Mechanics' Division, Spring Meeting, Charlotte, N. C., April 24, 1930.

•

International Exposition, Textile Exhibitors Association, Mechanics Building, Boston, Mass., April 28-May 3, 1930.

•

National Association of Cotton Manufacturers, Annual Meeting, Copley-Plaza Hotel, Boston, Mass., April 30-May 1, 1930.

American Cotton Manufacturers Association, Thirty-fourth Annual Convention, Carolina Hotel, Pinehurst, N. C., May 6-7, 1930.

•

Knitting Arts Exhibition, Commercial Museum, Philadelphia, May 12-16, 1930.

•

National Association of Hosiery and Underwear Manufacturers, Annual Meeting, Philadelphia, May 14, 1930.

•

Philadelphia Textile School Alumni Association, Outing and Annual Dinner, Philadelphia, June 6, 1930.

•

National Knitted Outerwear Association, Annual Meeting, Toronto, Canada, June, 1930. (Exact date not yet set.)

•

Southern Textile Association, Annual Meeting, Ocean Forest Hotel, Myrtle Beach, S. C., June 27-28, 1930.

•

Ninth Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 20-25, 1930.

•

Southern Textile Association, Semi-Annual Meeting, Poinsett Hotel, Greenville, S. C., Oct. 23, 1930.

French Hosiery Mill Men to Visit U. S. in April

A party of 25 French manufacturers, representing the leading hosiery firms of that country, will visit leading hosiery centers of the United States in April. The delegation will be headed by Victor Poirot of Troyes, agent in France and Belgium for American hosiery machinery.

Mr. Poirot stated that through the Fidelity Machine Co. and Standard Trump Bros. Machine Co., the visitors have received invitations to visit many hosiery mills, machinery builders, spinners, etc. The itinerary is as follows: April 8, arrive New York on S.S. "Paris"; 8-10, New York City; 10-18, Philadelphia and vicinity; 19-20, Washington; 21, Indianapolis; 22-24, Chicago and vicinity; 25, Detroit; 26, Buffalo; 27, Niagara Falls; April 28-May 2, New York City; and sail on S.S. "Paris" May 2.

During their visit the party may be addressed in care of the Fidelity Machine Co., Philadelphia, Pa.

Urges Cooperation Between Rayon and Cotton Interests

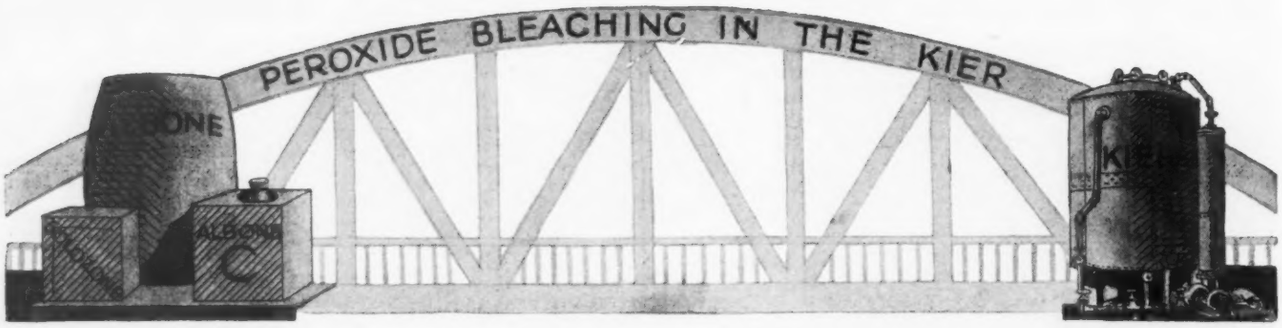
Dr. W. O. Mitscherling, vice-president and chemical director, A. M. Johnson Rayon Mills, Inc., Burlington, N. C., delivered an address before the Kiwanis Club of Greensboro, N. C., at their regular weekly luncheon, March 7. After tracing the development of rayon from its early stages down to the present, the speaker continued with the statement that the cotton industry would not be demoralized on account of rayon, and advocated close cooperation between cotton and rayon interests. "We are looking for greater prosperity in rayon," he said. "There will be overproduction in cheap rayon, but not in good rayon."

Change in Glanzstoff Sales Staff

American Glanzstoff Corp. has divided the sales department into two sections—the sales department and promotion department, with E. C. Elissen head of the latter and Henry Keenly assistant. Milton Bierman, formerly with Samuel Newburger & Co., will be attached to the New York sales department. Harry Biggi, formerly connected with American Glanzstoff Corp. on the technical staff and temporarily with Ashland Cotton Mills, has returned to the company and will be located in the Providence office.

Buckeye Cotton Oil Co. Builds Addition to Chemical Cotton Plant

Sheeted chemical cotton for the manufacture of rayon will be produced in a new million-dollar plant now being erected by the Buckeye Cotton Oil Co., at Memphis, Tenn. The plant is to be an addition to the chemical-cotton pulp mill. The output of the new mill will be sold directly to the rayon com-



R&H built the BRIDGE

that took Peroxide Bleaching to the KIER

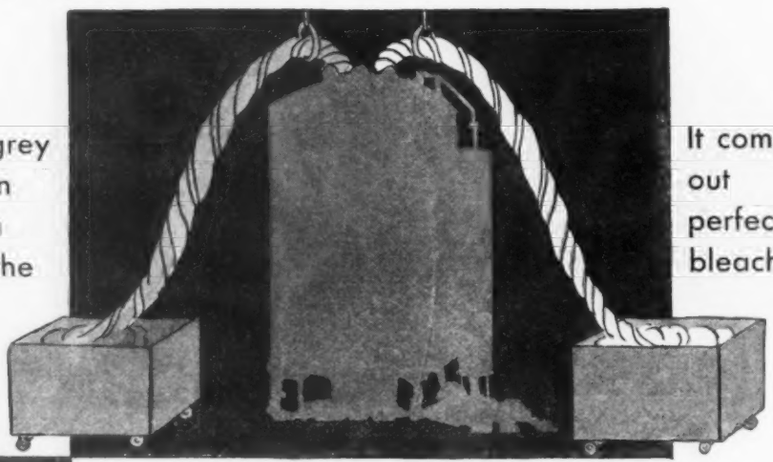
BEFORE:

13 operations;
24 hours;
Damage, Seconds;
Unevenness.

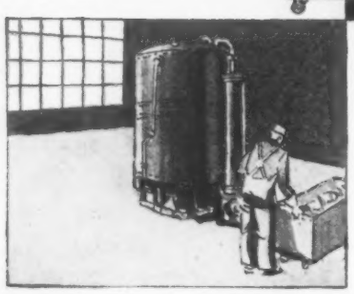
NOW:

3 operations;
8 hours;
Perfect results.

The grey cotton is run into the



It comes out perfectly bleached



ANY pump-and-heater Kier can be adapted, with little expense, for the R & H system of Peroxide bleaching, which equalizes cost of old and new methods. Ask us!

The **ROESSLER & HASSLACHER CHEMICAL CO.**
10 East 40th St., New York, N. Y.

THE BEST IS NONE TOO GOOD!!

panies. In the past the company has had its pulp converted into sheets by other concerns. Many viscose mills have been adopting the practice, it is said, of mixing cotton pulp with wood pulp, in spite of the higher price of the former, in order to produce a rayon of better quality.

The linters used for manufacturing rayon are the grade known as "Second Cut Lint." A ton of cotton seed as it comes to an oil mill carries about 200 lb. of short-fiber cotton. About 25 lb. of this fiber (known as "First Cut Linters") is first removed; this is used chiefly in the mattress trade. After removing this longer fiber, the seeds are again sent through the linting machine, which is similar in principle to a cotton gin, when a second cut of approximately 100 to 125 lb. of linters is taken off. A large majority of this "Second Cut Lint," after being purified and bleached, goes to the chemical trade. Purified linters intended for the manufacture of paper or for nitration is supplied in bulk form put up in machine-packed bales. For the viscose-rayon industry the purified linters are converted into heavy sheets similar to blotting paper. It is for the latter process that the new addition is being erected. The Buckeye Cotton Oil Co., which is a subsidiary of Proctor & Gamble Co., operates a chain of cotton-seed oil mills running from Arkansas to North Carolina.

Dancers Demonstrate New Silk Fabrics

Printed dress silks were given a novel and distinctive method of promotion, at a fashion tea held Wednesday afternoon at Central Park Casino, New York, to introduce "Penstrokes," new silks designed by Lucian Bernhard. These silks are manufactured by Goldstein-Wilkins Corp. They were shown, first in fabrics, by a group of Viennese dancers, and then in completed gowns made by Weinmann Gardner & Schwartz. The outstanding feature was the showing of fabrics, designed to resemble sea-foam; the dancers, wearing bathing-suits, draped themselves in lengths of the fabric and executed their dances. The bathing-suits showed dimly through the silk, giving the appearance of being seen through actual water. The event was under the auspices of "Contempora," a group of artists, including Rockwell Kent and Paul Poiret, and arrangements were in charge of Paul Lester Wiener. About 300 persons, prominent in society and the arts, attended.

"Another Blow to the Cotton Trade"

Under the above heading, *Printers' Ink Monthly* reproduces the following advertisement from the New York *Times* and adds its own comment:

> WANTED — Bookkeeper and typist, thoroughly experienced; prefer one with silk underwear. Tri-Knit, 31 East 32d.—*New York Times.*
>
> * * *
>
> Employers are so fussy these days!

A. M. Tenney, Bemberg Vice-President, Resigns

Charlotte, N. C., March 13—Ashton M. Tenney, vice-president and sales manager of the American Bemberg Corp., New York, N. Y., and Elizabethton, Tenn., who is in the South on

A. M. Tenney

a vacation today announced his resignation of that office effective March 1. Mr. Tenney stated that he would announce definite plans for the future at a later date.

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S. R. Fuller, Jr., chairman of the board of American Bemberg Corp., at New York, confirmed the report that Mr. Tenney had resigned. Mr. Fuller stated that he "made the confirmation with great regret as Mr. Tenney is held in the highest regard by all those associated with him in the American Bemberg Corp."

Stores Promote "Inside-Out" Hosiery

Following the current vogue among women for wearing full-fashioned hosiery inside out, hosiery knitters are producing numbers known as "inside out" hosiery. This line was actively promoted this week in retail advertising by several New York stores, including Best & Co. The Best Co. ad. announced "inside-out" hosiery under the brand "Rograin" at $1.95; the dull surface effect, slenderizing and wearability were among the characteristics stressed in the ad.

Tubize Stockholders Approve Chatillon Merger

At a meeting of the stockholders of the Tubize Artificial Silk Co. of America held Wednesday at the offices of the company in New York, the project to merge the company with the American Chatillon Corp. was approved by a large majority of the stockholders. The stockholders of the American Chatillon Corp. voted to merge their company with the Tubize company at a meeting held in New York last week.

The name of the new corporation is the Tubize Chatillon Corp. Its offices will be at 2 Park Ave., New York City.

The new corporation manufactures and sells three kinds of synthetic yarns, each manufactured by an established successful process.

An announcement of the officers and board of directors of the Tubize Chatillon Corp. is expected to be made within the next few days.

Southern Textile Exposition Entertainment Planned

Plans for the entertainment of visitors at the Southern Textile Exposition, which will be held in Greenville, S. C., during the week beginning Oct. 20, are in the process of formulation. The management of Textile Hall Corp. recently appointed an entertainment committee which will function in connection with a similar group announced by the Greenville Chamber of Commerce.

The new committee consists of the following: Milton G. Smith, chairman; L. C. Harris, Joseph C. Cobb, J. A. Piper, Harold C. Smith, E. F. Woodside and R. W. Arrington, all of Greenville. This group will co-operate with the reception committee of the Chamber of Commerce, headed by Edwin Howard, southern agent, Fales & Jenks Machine Co.

Approximately 1,500 letters were recently mailed to cotton mill executives of the South, reminding them that the exposition was only eight months off and pointing out the advantages obtained from studying the new and improved machinery which will be on display. William G. Sirrine, president of the Textile Hall Corp., expects a large number of mill executives to attend.

Silk Association Elects Officers March 26

Officers for the coming year will be elected at the annual meeting of the board of managers of the Silk Association of America, Inc., which follows the annual meeting of the association scheduled for Wednesday, March 26, at 2:00 p.m. at the association headquarters. Both meetings will be presided over by H. Schniewind, Jr., president of the association.

The nominating committee for association officers includes: Charles L. Auger, National Silk Dyeing Co.; Charles Cheney, Cheney Bros.; Beveridge C. Dunlop, American Glanzstoff Corp.; James A. Goldsmith, Hess, Goldsmith & Co., Inc.; Charles Muller, Sulzer, Rudolph & Co., Inc.; William Skinner, William Skinner & Sons.

Nominees for the board of managers will be presented for election at the association's annual meeting by the fol-

lowing nominating committee: Henry Doherty, Jr., Henry Doherty Silk Co.; Paolino Gerli, E. Gerli & Co., Inc.; H. S. Park, Read & Lovatt Mfg. Co.; Harry T. Rounds, Fabrics Finishing Corp.; Joseph Wadsworth, Doherty & Wadsworth Co.

Nat'l Hosiery Ass'n Appoints Nominating Committee

John Nash McCullaugh, managing director of the National Association of Hosiery and Underwear Manufacturers, announced that the following nominating committee has been appointed to present a slate of new officers and four new directors to the 26th annual meeting of the association on Thursday, May 15, at the Philadelphia Commercial Museum, Philadelphia, Pa.:

William Meyer, president of the Apex Hosiery Co., Philadelphia, chairman; Garnett Andrews, president Richmond Hosiery Mill, Rossville, Ga.; Ferdinand Thun, president, Berkshire Knitting Mills, Reading, Pa.; D. L. Galbraith, president, American Textiles, Inc., Bay City, Mich.; and Richard W. Sulloway, asst. treasurer, Sulloway Mills, Franklin, N. H.

E. G. Nathan Representing Philadelphia Spinners in New England

E. Geoffrey Nathan, worsted yarn selling agent, Boston, has been appointed sales agent for Warner J. Steel of Philadelphia, in the New England territory offering Bradford knitting and weaving yarns. Mr. Nathan announces his continuance as New England sales agent for Thomas Wolstenholme Sons & Co., Philadelphia, offering their line of French spun zephyr, worsted and merino yarns, also Bradford spun worsted yarns.

Wool Stock Institute to Meet

A luncheon meeting of the Wool Stock Institute will be held Wednesday, March 19, at 12:30 p.m. at the Hotel Pennsylvania, New York. The meeting has been called to discuss the many problems of the woolen rag industry, to define these problems clearly and to lay definite plans for attacking and solving such problems.

The officers of the Institute are: President Nat C. Myers, of the Myers-Lipman Wool Stock Co., Inc.; first vice-president, E. A. Stone, of E. A. Stone, Inc.; second vice-president, Mark Sherwin, of the Sherwin-Sheppard Co.; treasurer, Maurice Goldstein, of the American Wool Stock Corp.; secretary, W. H. Watson, of the Norbert Wolff Co.

Plan Durene Meeting at Knit Goods Exhibition

By arrangement with the National Association of Hosiery and Underwear Manufacturers, a special meeting devoted entirely to a discussion of mercerized yarns will be held by the Durene Association of America on Wednesday, May 14, from 2:30 to 4:30 p.m. in the convention hall of the Philadelphia Commercial Museum, Philadelphia, Pa. This meeting, it is announced by John Nash McCullaugh, managing director of the National Association, will be part of the program of the Knitting Arts Exhibition scheduled for May 12 to 16 inclusive, at the Commercial Museum. The annual convention of the National Association will be held Thursday, May 15, also at the Museum. The meeting will include a talk on the Durene Association by Ernest L. Starr, director-treasurer; an address on Durene in retail merchandising by a retail store executive, and an address on styling underwear and hosiery by Kathryn I. Day, fashion adviser of the Durene Assn. The program will be completed with an address, "Durene Marks a New Era in the Cotton Industry," by J. S. Verlenden, president of the Durene Association and of the Mercerizers' Association of America.

Rayon in Bonded Warehouse

The Department of Commerce, Bureau of Foreign and Domestic Commerce Washington announces stocks of rayon held in bonded warehouses on Jan. 31, 1930 as follows:

Description	Pounds	Value
Rayon Waste	54,271	$16,412
Staple Fiber, waste not advanced further than Sliver or Roving, and Yarns made from Waste	281,702	145,643
Yarns, Threads and Filaments	3,087,202	1,945,877
COMPARATIVE FIGURES FOR DEC. 31, 1929		
Rayon Waste	120,118	$27,180
Staple Fiber, Waste not advanced further than Sliver or Roving, and Yarns made from Waste	285,386	147,155
Yarns, Threads and Filaments	3,082,062	2,006,402

Increase Sales Force

American Fabrics Co., manufacturers and importers of laces and makers of woven labels, have added Albert Tammen and Otto Kramer to their sales force. Both will call on the retail trade with the firm's line of laces, trimmings, novelties, etc. Mr. Tammen will cover Manhattan, Bronx, Westchester and the Hudson River Valley within a radius of 125 miles of New York. Mr. Kramer will cover the entire state of Pennsylvania, with the exception of Philadelphia and Pittsburgh.

Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended March 15, based upon data compiled by the Market News Service of Bureau of Agricultural Economics, Department of Agriculture, are as follows:

	Week Ended Mar. 15	Totals to Date 1929	Totals to Date 1928
Domestic	2,138,000	14,694,000	11,100,000
Foreign	1,756,000	17,353,000	37,643,000
Total	3,894,000	32,047,000	48,743,000
IMPORTS AT PRINCIPAL PORTS			
Boston	1,756,000	17,353,000	37,643,000
Philadelphia	2,533,000	18,240,000	18,883,000
New York	1,146,000	12,925,000	19,363,000
Total	5,435,000	48,518,000	75,889,000

Business News

Sales Agents for Wickwire Spencer

Percy R. Jenkins and Fred W. Hale have been transferred from the New York sales office of the Wickwire Spencer Steel Co., to the Clinton, Mass., works office, where Mr. Jenkins was formerly assistant superintendent. Both will be sales agents for different departments.

Scott & William to Add to Plant at Laconia

LACONIA, N. H.—Lockwood Greene Engineers, Inc., of Boston, Mass., have been retained by Scott & Williams, Inc., of Laconia, N. H., to design and supervise the construction of a manufacturing building, 270x63 ft., 4 stories high, to be used for the manufacture of knitting machinery, the building to be of reinforced concrete. Construction work will start immediately.

Anderson, Clayton & Co. Changes in Personnel

Anderson, Clayton & Co., cotton merchants, announce the following changes in the personnel of their New England organization: T. A. Davis and W. G. MacEwen are transferred from Boston to Alexandria, Egypt; R. C. Lipscomb from New Bedford to Boston as joint manager with P. A. Sears; R. V. Grandison, formerly of the Hazard Cotton Co. to the Boston Office.

Reading Chain & Block Adds to Cleveland Staff

The Reading (Pa.) Chain and Block Corp. has added to its Cleveland sales and engineering staff, under George R. Harrison, district manager, W. C. Minier and F. C. Lorenz. Mr. Minier was formerly connected with the Shepherd Crane & Hoist Co. Mr. Lorenz was for years connected with The Cleveland Electric Tramrail Co.

General Brushes, Inc., Formed to Sell Textile Mill Brushes

General Brushes, Inc., 50 Allen St., Woonsocket, R. I., has recently been formed to manufacture and sell direct to the textile trade a general line of mill brushes. O. E. Lussier formerly of Woonsocket Brush Co., is general manager. Ray Thornton, treasurer of the Allen Co., New Bedford, is president, and R. Udell Thornton, president of the Allen Co. is treasurer of the new firm.

Hinde & Dauch to Erect New Corrugated Box Plant in Baltimore

The Hinde & Dauch Paper Co. will soon begin the erection of a large and modern plant for manufacture of corrugated shipping boxes in Baltimore, Md. The announcement comes from the company's headquarters in Sandusky, Ohio. It was learned that this action was due primarily to the early expiration of the company's lease of its present plant at North Haven St. and Fairmount Ave., Baltimore. A new site comprising some five acres of land in an advantageous location has been purchased and contracts have already been let.

This development, together with the

newly acquired plant at Richmond, Va., is expected to strengthen the Hinde & Dauch shipping container service in Middle and South Atlantic territory.

P. L. Lewis in Charge of Wagner Electric Merchandising

Wagner Electric Corp. of St. Louis, Mo., has announced the transfer of P. Lloyd Lewis from the managership of the Kansas City branch office to the home sales office, where he has been placed in charge of the merchandising division.

In recognition of his activity in Kansas City, the Electric and Radio Association, Kansas City, of which he is a past president, made him an honorary member for life.

Foreign Patents Granted Fidelty Machine Co.

The Fidelity Machine Co., Philadelphia, Pa., has recently received patents in seven countries on its multi-design machine for producing true-ribbed infants' anklets and straight-top socks with wrap-around designs. The United States patent has been applied for, but has not yet been awarded.

The fabric and mechanical patent numbers already granted are as follows: Great Britain, 267,459, 279,142, 279,351; Canada, 289,282, 290,582, 290,583; France, 615,464, 616,779, 638,649; Germany, 477,704, 69,120; Italy, 250,539, 251,010, 262,385; Japan, 75,470, 75,597, 80,769; Spain, 103,951.

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Textile Patents

TEXTILE machinery, Roll for. 1,741,351. W. A. Tebo, Anthony, R. I. Assigned to Draper Corp., Hopedale, Mass.

TEXTILE yarn, Method of preparing. 1,743,723. A. E. Meyer, Paris, France.

TEXTILE yarn and resulting products, Method of preparing. 1,743,722. A. E. Meyer, Paris, France.

THREAD controlling mechanism for brading machines. 1,742,124. S. B. Blaisdell, Philadelphia, Pa. Assigned to Fidelity Machine Co., Wilmington, Del.

THREAD controlling mechanism for braiding machine. 1,742,125. S. B. Blaisdell, Philadelphia, Pa. Assigned to Fidelity Machine Co., Wilmington, Del.

VEGETABLE textile material and process for producing same. 1,741,637. L. Lilienfeld, Vienna, Austria.

WEFT detector for looms. 1,741,186. G. Frechett, Lowell, Mass. Assigned to Crompton & Knowles Loom Works, Worcester, Mass.

WEFT exhaustion, Device to prevent repeated indication of. 1,741,316. W. H. King, Worcester, Mass. Assigned to Crompton & Knowles Loom Works, Worcester, Mass.

WEFT replenishing looms, Thread cleaner for. 1,741,263. W. H. Wakefield, Worcester, Mass. Assigned to Crompton & Knowles Looms Works, Worcester, Mass.

WARPER and method of warping yarn. 1,741,757. H. C. Colman, Rockford, Ill. Assigned to E. S. Nethercut, Evanston, Ill.

WARP beam. 1,741,800. F. C. Washburn, New Bedford, Mass.

YARN positioning device for looms for weaving tufted pile fabric. 1,742,024. E. F. Clark, Damariscotta, Me. Assigned to Marshall Field Mills Corp., Philadelphia, Pa.

Obituary

(Continued from page 61)

the textile industry in America and abroad, as well as in Government circles, through his position as the head of the Textile Alliance, Inc., which he caused to be formed in March, 1914, as a membership corporation in New York to eliminate abuses in the manufacture, sale and use of dyestuffs and mill supplies. This work of the Alliance was suspended at the start of the World War due to the consequent difficulty in obtaining dyes.

After the outbreak of the World War, the British Government declared wool to be a contraband of war and prohibited its exportation from British territory excepting under Government license. The wool situation in the United States became acute because of the inadequacy of the supply. To meet this situation the Alliance entered into an arrangement with the British Government whereby shipments to the United States were permitted in the name of the Alliance, to be released upon assurance that the wool would not be disposed of in the interests of the enemy.

From time to time the British Government, for military reasons, restricted the exportation of other textile fibers, notably jute, cotton, and flax, and the Alliance was requested by the British Government also to supervise these commodities.

These arrangements continued until shortly after the United States entered the war, when the United States War Trade Board undertook control of all imports into and exports from the United States and utilized the Alliance for this purpose. At that time Mr. Patterson became chief of the foreign wool section of the War Industry's Board.

In 1919 the War Trade Board section of the State Department appointed the Alliance as this Government's sole agent for the importation and sale of German dyestuffs included in the German reparations to the Allies. The Alliance holds an undivided surplus resulting from these services, the disposition of which is still unsettled.

Mr. Patterson was prominent socially and held memberships in the Union Club, Racket & Tennis Club, Bar Harbor Club, and the Merchants Club. He was also a member of Holland Lodge No. 8, F. & A. M. and the St. George's Society.

Jokichi Takamine

Jokichi Takamine, Jr., president of the Takamine Laboratory, Inc., Clifton, N. J., manufacturers of Polyzime "P", died recently as a result of injuries sustained in an accident in New York City. Mr. Takamine was the son of the late Dr. Jokichi Takamine, world famous discoverer of Adrenalin and Taka Diastase and founder of the various companies in America and Japan which bear his name. Mr. Takamine, Jr., succeeded to the presidency of the Takamine Laboratory, Inc., after his father's death in 1922, and built up the business of this company to its present position as one of the largest makers of enzymic products in the country. The business of the Laboratory will be continued under the management of Mr. Takamine's brother, Eben T. Takamine, who on March 7 was elected president of the company. Mr. Takamine Jr. had just returned from a two months' trip to Japan, where he attended the World Engineering Congress as an official delegate of the American Chemical Society. He was 41 years old and was a graduate of Yale University, class of 1913. He was a director in a number of companies in New York and Japan, and a member of many clubs and scientific societies.

William H. Sampson

William H. Sampson, formerly president of the Corticelli Silk Co., Northampton, Mass., died March 3 at Clearwater, Fla., his winter home, following a short illness. Mr. Sampson was 73 years old and a native of Northampton. He was connected with the Corticelli Silk Co. for 47 years. He studied law when a young man and was admitted to the Massachusetts bar. Mr. Sampson began his silk career with the Nonotuck company, which later became the Corticelli company, at the company's Cincinnati office. He was a director of the company until his retirement in October.

Charles Harvey Lane

Charles Harvey Lane, former prominent silk manufacturer of Paterson, N. J., died Feb. 23 at Leehaven hospital in Watertown, N. Y., where he had been a patient for the preceding five years. He was 85 years old. He was formerly European representative of the importing house of Hitchcock & Potter of New York City, and later became manager and part owner of the Hitchcock silk mill at Paterson, N. J., in which he purchased a large interest in 1878. Compelled by failing health to forego business and return to Watertown, he again became active when he purchased an interest in a large New York department store.

Julius Breslauer

Julius Breslauer, president of the Blue Star Knitting Co., Milwaukee, Wis., died suddenly March 4, at the age of 61, following a heart attack. Mr. Breslauer was born in Germany and went to Milwaukee 46 years ago. He formed the Blue Star Knitting Co. in 1919, and was actively engaged in the management of the concern, which manufactures underwear, until the time of his death. He is survived by his widow, three sons, and a daughter.

C. L. Meroney

C. L. Meroney, secretary-treasurer of the plant of the Alabama Cotton Mills, at Montevallo, Ala., president of the Merchants & Planters Bank and owner of the Meroney Mercantile Company, of Montevallo, died recently following a short illness. His widow and four daughters survive him.

Edward Louden

Edward Louden, for many years overseer of the carding department for E. G. Carlton & Sons, Rochdale, Mass., died at his home in that village on Feb. 24, after a long illness. He was 78 years old and a native of North Lee, Mass. He leaves two brothers and a sister.

Melville L. Rudisill

Melville L. Rudisill, retired cotton manufacturer of Cherryville, N. C., died recently at the age of 82. Mr. Rudisill organized the Melville Mfg. Co. of Lincolnton, and was for years an officer of that company until his retirement several years ago.

I. B. Morris

I. B. Morris, aged 76, superintendent of the Langdale (Ala.) Cotton Mill, died recently at Langdale.

Bernard J. Hausfeld

Bernard J. Hausfeld of the Lunkenheimer Co., Cincinnati, O., died recently.